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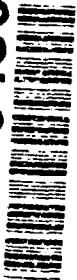
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A STUDY TO IDENTIFY THE CHARACTERISTICS

OF THE BENEFICIARIES RESIDING WITHIN THE

CATCHMENT AREA OF KELLER ARMY COMMUNITY HOSPITAL

A Graduate Management Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of ·

Master of Health Administration

by

Captain Randolph G. Howard, Jr.

12 June 1992

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Abstract

Gateway to Care is the U.S. Army's Coordinated
Care Program. Gateway to Care gives the hospital
commander the authority to coordinate health care
resources to meet the needs of all the beneficiaries in
his catchment area, in the most efficient and effective
way (Mendez, 1992b). The hospital commander is
responsible for managing both the Operations and
Maintenance, Army (OMA) and the Civilian Health and
Medical Program of the Uniformed Services (CHAMPUS)
budgets. CHAMPUS has been experiencing rapid increases
in costs (Badgett, 1990). Consequently one of the
primary objectives of Gateway to Care is to slow the
growth of CHAMPUS costs (Noyes, 1991).

Keller Army Community Hospital (KACH) has been
directed to implement the Gateway to Care concept. In
order to more accurately implement this concept, the
characteristics of the beneficiary population must be
determined. The analysis of the KACH beneficiary
population has been accomplished by accessing various
information systems and by using a beneficiary
questionnaire. The results of this analysis are being
used by the KACH leadership as they continue to
implement Gateway to Care.

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Introduction

Some of the most hotly debated issues confronting all Americans revolve around health care. Articles concerning health care costs, access, and quality frequently are found in the pages of newspapers, journals, and other periodicals. These issues are pervasive throughout the military and civilian health care systems.

The Office of National Health Statistics (cited in Mendez, 1992b) states that health care related expenses comprised over 12% of the United States Gross National Product (GNP) in 1990. According to Braendel (1990), increases in health care costs have significantly outpaced the rate of inflation over the last several years. Fuchs (1990) warns that if health care expenditures account for much more of the GNP, many sectors of the United States' economy could suffer. Additionally, the rising costs of health care are making it difficult for individuals to obtain health insurance either privately or through their employer (Weil, 1992).

Indeed, over thirty million Americans have no health insurance, and many more are woefully underinsured (Mendez, 1992b). Almost a third of the

uninsured are children (Weil, 1992). Unfortunately,
the uninsured and underinsured people do not have
adequate access to proper health care services.
Normally, they are not allowed to enter hospitals for
health care services unless they are critically ill.
Instead of having access to primary care, which can
prevent the escalation of many injuries and illness
into medical emergencies, this country's uninsured and
underinsured many times must wait for their illness or
injuries to become life threatening before they can be
treated (Hagland, 1992).

Quality is an important issue in all industries.
The health care industry is not any different. The
health care industry is being challenged to adopt a
Continuous Quality Improvement (CQI) (or Total Quality
Management [TQM]) stance (Lynn, 1991). The Joint
Commission on Accreditation of Healthcare Organizations
(JCAHO), which is the accrediting agency for health
care organizations, is now looking for the presence of
CQI procedures in health care organizations (JCAHO,
1992).

The quality of care given by all health care
organizations does have an impact on the cost of and
access to care. High quality care can improve the

efficiency and productivity of the health care
organization (Gillem, 1988). If the efficiency and
productivity of the organization increase, perhaps the
costs of providing health care will not increase as
rapidly as in previous years, and the accessibility to
health care will increase for some people.

Military Health Service System

The Military Health Service System (MHSS) is
comprised of two components: the direct health care
system and the Civilian Health and Medical Program of
the Uniformed Services (CHAMPUS) (Badgett, 1991). The
9.2 million eligible beneficiaries of the MHSS include
active duty service members, their family members,
retirees and their family members, and family members
of deceased active duty or deceased retiree personnel
(Badgett, 1990). All the aforementioned beneficiaries
are authorized to use the direct health care system.
All beneficiaries, except for active duty service
members, and beneficiaries over the age of 65 years,
may use CHAMPUS (Department of Defense [DOD], 1991).

CHAMPUS is a health care service option that
allows eligible beneficiaries to receive health care
from civilian providers (Badgett, 1990). CHAMPUS
eligible beneficiaries must pay 100% of the charges,

for outpatient care, until they reach their respective deductible limits (DOD, 1991). After the deductible is reached, beneficiaries pay 20 to 25% of the charges (DOD). CHAMPUS pays the balance of the allowable charges.

CHAMPUS eligible beneficiaries, who live in the catchment area of a military medical treatment facility (MMTF), must seek prior approval from the local MMTF when they seek inpatient care (DOD, 1991). A MMTF's catchment area is the geographical area within a forty mile radius around the MMTF. Beneficiaries, who receive inpatient care in a civilian health care facility, pay a small daily charge (DOD). For outpatient care, these beneficiaries do not need to obtain prior approval, except for 14 categories of outpatient care. Patients are responsible for the charges which exceed the CHAMPUS allowable charges. Once beneficiaries reach the age of 65, they are no longer eligible for CHAMPUS (Badgett, 1990).

Conditions Which Prompted the Study

As mentioned previously, U.S. health care costs have been skyrocketing over the past several years. America's health care costs increased 15% in 1991 (Mendez, 1992b). Increases in health care costs are

found in both the military and civilian health care delivery systems. Badgett (1990) reports that in 1981 the CHAMPUS portion of the MHSS budget was approximately $852 million dollars. Current figures show that the DOD is spending nearly $3.0 billion on CHAMPUS (K. Zimmerman, personal communications, February 3, 1992). These current costs represent a 350% increase in costs over the past decade.

Several DOD initiatives are currently being conducted and evaluated in an attempt to determine effective ways of controlling CHAMPUS costs (Gisin & Sewell, 1989). Some of these programs include the CHAMPUS Reform Initiative (CRI), Primary Care for the Uniformed Services (PRIMUS), and Catchment Area Management (CAM) (Gisin & Sewell). A more recent and perhaps comprehensive program is the Gateway to Care program which is being established at 11 U.S. Army installations (D. A. Braendel, personal communication, February 5, 1991). The U.S. Army installations offering Gateway to Care include Fort Benning, Fort Bliss, Fort Drum, Fort Campbell, Fort Bragg, Fort Gordon, Fort Hood, Fort Leavenworth, Fort Leonard Wood, Fort Riley, and the U.S. Military Academy (McIntire,

1992). All of these programs are considered managed care programs (Fant & Pool, 1990).

Kongstvedt (1989) states "The term managed health care is now used to refer to any system that manages the delivery of health care in such a way that the cost is controlled" (p. xiii). The military's managed care programs not only seek to contain costs, but also to improve access to care and provide quality health care services to DOD beneficiaries (Leahy & Mouritsen, 1990).

Keller Army Community Hospital (KACH) is located at the United States Military Academy, West Point, New York. KACH is 65 bed facility which provides a comprehensive range of health care services.

West Point's catchment area includes portions of Connecticut (CT), New Jersey (NJ), New York (NY), and Pennsylvania (PA). Fort Monmouth's catchment area overlaps the southern portion of West Point's catchment area (see Appendix A). DOD beneficiaries living in the overlap area can use either KACH or Paterson Army Community Hospital (PACH), which is located at Fort Monmouth.

The Defense Medical Information System (DMIS) (Defense Medical Systems Support Center [DMSSC], 1991)

provides information on the size of all DOD catchment

areas. Table 1 lists numbers and types of

beneficiaries living in West Point's catchment area

according to DMIS.

Table 1

Eligible Beneficiaries Living in West Point's Catchment

Area

Active Duty:	6873
Dependents of Active Duty:	8990
Retirees:	8173
Dependents of Retirees:	6506
Survivors:	1622
Total:	321648

DMIS obtains these numbers from the Defense Enrollment

Eligibility Reporting System (DEERS). All military

personnel and retirees are responsible for updating

their personal DEERS file on a routine basis. Hence,

the DEERS information accuracy is mainly determined by

the conscientiousness of the service members and

retirees.

KACH is one of the U.S. Army's Gateway to Care

sites. The Gateway to Care program at KACH was

initiated on November 1, 1991. KACH's program consists

of three enrollment phases into Gateway to Care: 1.

enrollment of active duty families, 2. enrollment of

retirees and retiree family members under the age of 65, and 3. enrollment of retirees and retiree family members 65 years old and older. The enrollment process for active duty families has been proceeding since January 2, 1992. KACH is preparing to enroll retirees and retiree family members under the age of 65 in September 1992. The enrollment of retirees and their family members, who are 65 years old and older, will begin after phase 2 is completed.

Gateway to Care presents many new challenges to KACH. One of which is to perform an analysis on the active duty and retiree households. KACH knows how many beneficiaries live in the catchment area. KACH does not know, however, who these people are, where they live, what their perceived health needs are, and what their health care utilization patterns are. KACH needs to have this information for several reasons. Names and addresses of the beneficiaries are necessary in order to know who the potential enrollees are, and where to mail the Gateway to Care enrollment forms, for those beneficiaries KACH would target for enrollment. The beneficiaries' perceived health care needs must be identified in order that the appropriate health care resources can be made available. The health care

utilization patterns of the beneficiaries must be discovered for two reasons. First, KACH wants to identify any large portions of the population that are routinely using civilian providers for outpatient care. Outpatient health care was targeted because CHAMPUS eligible beneficiaries do not need to obtain a nonavailability statement when using CHAMPUS to finance most outpatient procedures. KACH would want to know why these beneficiaries are not using a MMTF. KACH would also encourage these individuals to use a MMTF instead of a civilian provider. Secondly, KACH is interested in discovering the methods used for financing the civilian care. If certain beneficiaries are frequently using CHAMPUS to finance this civilian care, then KACH would certainly attempt to enroll those beneficiaries in Gateway to Care.

My paper will address the issues listed above. The information gathered by my paper will allow KACH to more accurately execute the three enrollment phases.

Statement of the Management Problem

KACH needs to conduct a beneficiary analysis on active duty and retiree households in order to more fully implement Gateway to Care. KACH wants to discover who the beneficiaries are, where they live,

what their health needs are, and their outpatient health care utilization patterns.

Review of the Literature

Performing a beneficiary analysis can be accomplished in a few different ways. The researcher can simply query existing information management systems for the pertinent information. The researcher can also design and implement questionnaires (surveys) in order to analyze a population (Foster, 1988). A combination of both techniques can also be used (Foster). The following literature review demonstrates how researchers have used questionnaires and databases to study various populations.

In 1989, Leahy and Mouritsen (1990) used databases to analyze beneficiaries using PRIMUS clinics. They performed a study to compare the PRIMUS and CHAMPUS workload. In this study the authors studied workload data for adverse reactions, cardiology, dermatology, infectious disease, pulmonary/respiratory, gynecology, ophthalmology, and ear, nose, and throat (Leahy & Mouritsen). In order to conduct this study the authors had to study the utilization patterns of specific beneficiaries, who lived in catchment areas where PRIMUS clinics were located.

Leahy and Mouritsen (1990) obtained this data primarily from databases which were maintained by various agencies. For example, much of their data was obtained from the Office of Civilian Health and Medical Program of the Uniformed Services (OCHAMPUS) and the National Association of Ambulatory Care Centers. The authors were able to show that PRIMUS improved access to health care. Leahy and Mouritsen also discovered, however, that PRIMUS did not reduce the health care related costs.

In another beneficiary study, Herschberger (1990) attempted to determine if Evans Army Community Hospital (EACH) could contain CHAMPUS inpatient mental health care costs through managed care techniques. To do this it was important to analyze the case-mix and volume of the CHAMPUS inpatient mental health workload in the catchment area. Herschberger obtained this information from the CHAMPUS Inpatient Care by Diagnosis Code Report. He then used this information to determine if inpatient mental health cases could be handled less expensively through an EACH managed care program. Herschberger determined that 2.4 million dollars could be saved in mental health costs through the use of managed care techniques.

In the next two articles, the researchers used surveys to gather information on certain populations. The researchers showed the usefulness of using surveys for this purpose.

In 1987, Parker, Rescorla, Finklestein, Barnes, Holmes, and Stolley (1991) conducted a health survey of homeless families living in Philadelphia shelters. After reviewing the literature on the health status of homeless families, Parker et al. discovered that little information existed on the subject. According to the researchers, "We therefore designed a survey of homeless families residing in shelters in Philadelphia to obtain descriptive information that would be helpful in health planning and in identifying specific problems and unmet health needs" (p. 521).

The researchers visited 13 shelters to administer an oral questionnaire. The questionnaire was comprised of four major sections, which were parental health, demographics, health history of the children, and access to medical care (Parker et al., 1991). The researchers attempted to administer the questionnaire to a random sample of 183 families. One hundred forty-three families agreed to participate in the study. The response rate, therefore, was 80%. In addition to the

oral questionnaire, developmental and psychological tests were administered to the families.

The results of this study showed that many homeless families resided in the shelters for very long periods of time. Families, who resided in shelters, seem to have serious medical, developmental, and psychological afflictions. The authors conclude that special public programs, such as health screening and education, are needed in order to correct these afflictions.

Gelberg, Linn, and Allison-Oakes (1990) also performed a study on the homeless. The purpose of the authors' research was to determine if differences in health status existed between older and younger homeless adults. For the purposes of this study, an older person was 50 years old and older, and a younger person was 18 to 49 years old (Gelberg et al.).

The authors conducted their survey in Los Angeles County. They searched for homeless individuals in such areas as shelters, shopping malls, parks, and soup kitchens. In order to encourage participation in the study, potential respondents were offered two dollars for submitting to an interview and physical examination, and another two dollars for allowing a

blood sample to be drawn (Gelberg et al., 1990). The interview consisted of various demographic, social health, mental health, and physical health questions. The physical examination consisted of blood pressure observations, examinations of the eyes, ears, and skin, and height and weight measurement.

Gelberg et al. (1990) performed appropriate descriptive statistics, such as means and standard deviations, and inferential statistics, such as chi-square and Student's t-test. The results of these tests showed that older homeless people are more likely than younger homeless people to be socially isolated and have chronic diseases, functional disabilities, and a myriad of other ailments. The authors conclude that geriatricians should enlighten the other primary care providers to the special health needs of older homeless adults, so that these types of geriatric persons can be treated in a more comprehensive way.

In the previous articles, the authors used either a questionnaire or a database to gather information. In the following two articles, the authors use databases and questionnaires to perform a beneficiary analysis.

In 1987, Foster (1989) used databases and a questionnaire to discover pertinent information on a

specific beneficiary segment of Martin Army Community
Hospital (MACH) catchment area. In 1987, the commander
of MACH wanted to attempt to control his catchment
area's CHAMPUS costs by establishing preferred provider
networks for certain services in specific locations
(Foster, 1989). Foster determined that three pieces of
information would be needed to successfully establish
these networks. First, he had to determine the number
of active duty family members, U.S. Army retirees, and
family members of retirees that resided in MACH's
catchment area. Second, he wanted to determine where
these beneficiaries were receiving health care. Third,
he wanted to discover how beneficiaries were paying for
care received outside of MACH.

Foster (1989) used both the automated databases
and questionnaires in his attempt to define the
beneficiary population for the MACH catchment area. In
order to identify the beneficiaries that lived in
MACH's catchment area, he used an automated personnel
system called the Standard Installation/Division
Personnel System (SIDPERS) and a database from Fort
Benjamin Harrison. SIDPERS was used to identify active
duty soldiers who had at least one dependent. A
database used for mailing W-2 forms to retirees, which

was located at Fort Benjamin Harrison, was used to determine which retirees resided in MACH's catchment area.

Foster (1989) also designed two questionnaires in order to determine where beneficiaries sought medical care and how they paid for the care. One questionnaire was developed for active duty family members, and the other was developed for retirees and their family members. Questionnaires were then mailed to active duty members and retirees. The active duty soldiers gave the questionnaires to their dependents, who answered and returned the questionnaires. The retirees and their family members also answered and returned the questionnaires. The response rate for the active duty questionnaires was 30%. The response rate for the retiree questionnaires was 51%.

Foster (1989) then analyzed the returned questionnaires. He was able to gather useful demographic data on the population. He discovered that approximately 95% of the active duty soldiers, who have at least one family member living in MACH's catchment area, live less than 10 miles from post. There were approximately 3.65 family members per active duty family. The average age of the retirees was 59 years.

There were approximately 1.7 family members per retiree family. Unfortunately Foster's study also had several weaknesses, which limited the value of some of his other findings. Although these weaknesses existed, the leadership at MACH was still able to use Foster's analysis in planning for the of the CHAMPUS project.

This next study was conducted at Ireland Army Community Hospital (IACH). In 1987 the leadership at IACH perceived that retired personnel in their catchment area were dissatisfied with the access to outpatient clinics (Morrill, 1987). This perception was thought to have arisen when IACH restricted access for retirees to outpatient services during an Army wide shortage of physicians in the mid 1970s. The leadership now believed their current hospital staff had the capability to increase the amount of outpatient services provided to retirees. IACH wanted to implement a marketing program to recapture part of the retiree population, which was seeking care from civilian providers.

Morrill (1987) performed the first step of the marketing effort, which was marketing research. First, Morrill began searching for a database of retirees who lived in IACH's catchment area. She received such a

database from the Fort Knox Retiree Services Office (RSO). Next, Morrill developed a phase I questionnaire, to determine how often retirees used outpatient clinics and which clinics they used. Third, she distributed the survey to a random sample of retirees. Forty-four percent of the surveys were returned. She then proceeded to analyze the completed surveys. Morrill's analysis of the completed surveys revealed that 80% of the those who returned surveys used IACH for medical care.

Morrill also developed a phase II survey, which would measure the respondents' perception of access and quality of care at IACH. The population targeted consisted of retirees who primarily used civilian providers for health care. Her analysis indicated that the majority of the respondents were satisfied with most aspects of the care received. The major dissatisfaction associated with the care received at IACH, as perceived by the respondents, was the difficult process encountered when attempting to get a timely appointment at the hospital.

Morrill (1987) determine that the majority of the retiree population was utilizing IACH for their health care needs, and was very satisfied with the care

received, if they could get an appointment. Morrill, therefore, concluded that IACH should not attempt to recapture more of the retiree population, since a high percentage of the respondents were using IACH.

Having shown that databases and questionnaires are appropriate tools for the collection of information of this nature, it became apparent that I needed a strategy for the application of these tools. For this strategy I turn to Kotler and Clarke (1987), who are health care marketing educators. The type of strategy I adopt from them is a marketing research strategy. According to Kotler and Clarke, "The marketing research process consists of five steps: developing the research objectives and problem definition; exploratory research; formal survey and/or experimental research; fieldwork; and data analysis and report presentation" (p. 184). My paper will follow this marketing research process. The first step of this process is covered in the statement of the management problem and the purpose of the study. The exploratory research consists of the review of the literature, study design, and development of the questionnaire. The formal survey step is the mailing the questionnaires to the beneficiaries. The fourth step is the data collection phase. The fifth,

and perhaps most important step, is comprised of the statistical analysis, results, discussion, and conclusions and recommendations sections of this paper.

Purpose of the Study

The purpose of this study is to perform an analysis of the active duty and retiree households residing in the KACH catchment area. The analysis will address the following questions:

1. Who are the eligible beneficiaries?

2. Where do they live?

3. What are their health needs?

4. From where are they getting their outpatient health care now?

5. How are they paying for their health care?

This information is needed so that KACH can improve and further refine the implementation of its managed care program.

Limitations of the Study

Some of the zip codes used to mail the retirees' questionnaires, and recorded on certain retirees' questionnaires, were in locations outside the KACH catchment area. This could be due to several factors. Many retirees have more than one address. They might live in two or more locations during the year. For

example some retirees live in the northern part of the
U.S. during the warm months, and then move to the
southern part of the U.S for winter. Retirees, who
adopt this practice, are nicknamed "snowbirds".
Therefore, these snowbirds might use KACH's facilities
at various times of the year.

Additionally, some of the zip codes are for
locations that are just outside KACH's catchment area,
as defined by OCHAMPUS (1992). Retirees living outside
KACH's catchment area are authorized to use KACH's
services on a space available basis. Although these
individuals might not be located in KACH's specified
catchment area, their health needs and utilization
patterns are very important to KACH. KACH must be able
to identify the resources necessary to provide
efficient and effective health care to these people.
Another reason that KACH is interested in this
particular population is due to KACH's budget. Under
Gateway to Care, KACH's budget will become capitated.
KACH's budget will be based on the number of
beneficiaries living in the catchment area. The
capitated budget may not support the costs of providing
care to this group.

Individuals residing outside KACH's catchment area can use CHAMPUS. Their CHAMPUS utilization patterns are important to KACH, and the DOD, since frequent use of CHAMPUS will increase CHAMPUS. If we detect frequent use of civilian providers by beneficiaries, who live in the same proximity to each other, then the establishment of a preferred provider network might be warranted.

An accurate listing of the survivors in the KACH was not available. Additionally, enrollment of the survivors is not yet scheduled in the Gateway to Care plan. Therefore, the survivors were not surveyed. Some survivors, however, did receive questionnaires. Their completed questionnaires were also analyzed.

The 4400 cadets stationed at West Point were not surveyed. KACH knows what their health needs are from years of experience of meeting these needs. Additionally, the cadets' point of entry to the MHSS for their health care needs will invariably be through KACH directly, or one of KACH's satellite clinics. Therefore, the issues of where they get their care and how they finance it are not relevant to the management problem.

Methods and Procedures

Subjects

Two major tasks were conducted virtually
simultaneously during the initial stages of this
research project. An accurate listing of the
beneficiaries living in West Point's catchment area,
was needed. Additionally, the research instrument
(questionnaire) had to be developed.

Study Design

Database of Beneficiaries

The types of databases needed for this study were
ones that would provide names, ranks, and current
mailing addresses of the beneficiaries within West
Point's catchment area. After some initial
investigation, I determined that several different
sources would have to be used in obtaining the
databases. The database for active duty personnel
assigned to West Point or Stewart Army Subpost (STAS)
could be obtained from the Directorate of Engineering
and Housing (DEH). STAS, which is a subpost for West
Point, is a military community located 17 miles north
of West Point. The units located on STAS include the
Readiness Group (RG) - Stewart, 146th Emergency
Ordinance Disposal (EOD), Headquarters and Headquarters

Company (HHC), 854th Engineer Battalion, 320th
Evacuation Hospital, 336th Medical Detachment, 4th
Marine Air Wing, 105th Air National Guard, 3516th U.S.
Air Force Recruiting Battalion, and the 42nd Infantry
Division Material Management Center. STAS also
provides additional housing for West Point and STAS
military families.

Active duty personnel living at West Point or STAS
and all U.S. Army personnel working at West Point or
STAS must inprocess at DEH's Housing Division. When a
service member inprocesses, he or she is either
assigned government quarters or is given a statement of
nonavailability of government quarters, which gives the
service member permission to draw basic allowance for
quarters (BAQ). The service member can then lease or
buy quarters in the surrounding civilian communities.
The Housing Division maintains a current database on
all service members inprocessing through the Housing
Division office. In September, 1991, a printed copy of
this database was obtained from the Housing Division.

Not all service members living in West Point's
catchment area, however, must inprocess through the
Housing Division. The service members of the 105th Air
National Guard, the Marine Airlift Group (MAG), and the

3516th Recruiting Squadron do not have to inprocess through the Housing Division. These airmen and marines can receive the authorization to receive BAQ from their respective units. Therefore, the Housing Division's database did not contain information on these airmen and marines.

Individual requests for the ranks, names, and addresses of the personnel in these separate units were sent to each unit's commander. All units provided a complete personnel listing in a timely manner.

The next step was to input the data from these active duty personnel listings into a database. This was accomplished by manually inputting the data into the database software package dBASE III PLUS (Ashton-Tate, 1986). This database was used for this graduate management project and eventually for the enrollment of active duty families in West Point's Gateway to Care program. The distribution of active duty households by zip code was also created (see Appendix B). The total number of active duty households on the database was 2176.

Collecting similar information on the retirees, residing within West Point's catchment area, proved to be a more difficult task. The agency, which had a

database on U.S. Army Retirees, is the U.S. Army
Retired Pay Operations located at Fort Benjamin
Harrison, Indiana (Foster, 1988). This agency
possesses a database which lists mailing addresses for
the retirees' W-2 Form.

Retired Pay Operations sends a copy of this
database to Retirement Services Officers located at
various U.S. Army installations (Foster). The database
received at an installation contains information on
those retirees using the services of the installation.
At West Point, the database is actually sent to the
Directorate of Information Management (DOIM), which
converts the database into a report called the "Retired
Army Personnel Roster By Zip Code". The Directorate of
Information Management sends this report to the
Retirement Services Officer.

In September 1991, a copy of the "Retired Army
Personnel Roster By Zip Code" was obtained from the
West Point Retirement Services Officer. Additional
retiree listings were also needed, since this report
did not include all the other services' retirees
residing in the West Point catchment area.
Consequently, requests for the other services' retiree
listings were sent to the appropriate authorities of

the U.S. Air Force, U.S. Navy, U.S. Marine Corps, and

U.S. Coast Guard in October 1991. Unfortunately, the

only services that responded were the U.S. Coast Guard

and the U.S. Air Force.

At approximately the same time the personnel

requests were sent to the other services, I discovered

that the DOIM had retiree listings of the other

services. A file transfer request was then sent to the

DOIM. The information requested was the names, social

security number, and mailing addresses of all retirees

residing in the West Point catchment area. DOIM

transferred the information onto computer disks. The

information on the disks was then loaded onto the

database. The total number of retiree households

listed on the database was 4933. This number is

considerably smaller than the 8173 retiree households

reported by DMIS. The possible reasons for this

discrepancy are discussed in the discussion section of

this paper. A listing, which shows the distribution of

retiree households by zip code, was also created (see

Appendix C).

Development of the Questionnaire

According to Okolo (1990), "When creating a form

for data collection, there are a number of errors that

are to be avoided. Each error is based on the tendency to think of these forms from the researcher's perspective rather than from that of the person filling out the survey" (p. 103). Throughout the entire process of developing the questionnaire, I envisioned how a potential subject (respondent) would respond. I attempted to develop a questionnaire that would motivate the subject to completely and accurately answer the questionnaire.

An uninterested respondent is probably more likely to either discard the questionnaire, or answer it inaccurately. A low response rate or inaccurately completed questionnaires can obviously have a detrimental impact on the results.

Okolo (1990) offers some simple but good advice for the development of a questionnaire. He believes the questionnaire should be simple, interesting and unambiguous. Okolo also suggests that the questions be positive and non-threatening. The questionnaire for this research project was developed by using Okolo's advice.

Before developing the questionnaire, it was necessary to determine what information needed to be collected. As mentioned previously, the purpose of

this project was to perform an analysis of the beneficiary population residing in the West Point catchment area. I now have the names and addresses of the beneficiaries. I still need to determine what their perceived health needs are, where they receive their outpatient health care, and how they finance their civilian health care.

After several discussions with Colonel Earl B. Mally, Jr., Deputy Commander for Administration, KACH, I determined exactly what information needed to be collected. I wanted to obtain the zip code location of respondents, employment status, military status, family size, perceived health care needs, location of outpatient health care received in the last year, and how civilian outpatient care was financed. Colonel Mally and I believed this information would adequately answer the questions listed in the purpose of the study.

I then began to create the questions. The questionnaire endured five revisions before being completed. Each version of the questionnaire was administered to various people throughout KACH. The people completing the questionnaire were asked to comment on the clarity of and ease of answering the

questionnaire. Respondents included active duty personnel, retirees, and dependents.

Reliability and validity are important concepts to consider when developing a questionnaire. Reliability indicates if the measuring instrument (questionnaire) is measuring accurately (Okolo, 1990). For example, if a bathroom scale gave widely varying measurements for the same person using the scale , the scale would not be reliable. Validity is a concept which indicates the measuring instrument is measuring the right thing (Okolo). A stethoscope, for instance, should not be used to measure weight.

Reliability and validity of the instrument were demonstrated when the final draft was administered to various individuals in the hospital (K. Finstuen, personal communication, October 29, 1991). Reliability was demonstrated, as these respondents understood all items on the questionnaire and answered them in a similar manner. Additionally, Colonel Mally and Dr. Kenneth D. Finstuen, Associate Professor of Health Care Administration, Baylor University, agreed that the questions asked were valid ones.

Another consideration to address when administering a questionnaire is the protection of the

ethical rights of the respondents. In order to protect the ethical rights of the respondents, the researcher must tell the respondents that participation in the research is completely voluntary (Okolo, 1990). Researchers obviously should not coerce respondents into participating in the study. Additionally, the researcher must assure all respondents that their responses will be kept confidential. The questionnaire used for this research contained an ethical statement. The statement explained to the respondent that participation in the research was voluntary and all information would be kept confidential.

After consulting with Colonel Mally and Dr. Finstuen, the final version of the questionnaire was prepared. After the survey was completed, it was sent to the installation printing plant for reproduction. Printed on the reverse side of the survey was the mailing address of KACH, and the frank. The frank indicated to the respondents that returning the questionnaire would be free of charge. After completing the questionnaire, the respondent only needed to fold and tape the questionnaire, and drop it in a mail box. Attached to the survey was a letter signed by the hospital commander which explained the

purpose of the questionnaire, and also requested that the questionnaire be completed and returned. The questionnaire and letter were sent to the installation printing plant for reproduction on October 31, 1991 (see Appendix D). Printing of the documents was completed on November 18, 1991.

The next task was to choose a random sample. Selecting a random sample ensures that all persons, objects, or events of a population have an equal chance of being in that sample. A random sample is considered to be representative of the population, therefore statements or inferences about the population can be made (K. Finstuen, personal communication, July 13, 1990). After discussing the purpose of this research process with Dr. Finstuen, we agreed on a sample size of 20% of the households, or 1422 households.

The sample was also stratified between active duty and retirees. Twenty percent of the active duty households represents 436 households. Twenty percent of the retiree households represents 986 households.

The active duty and retiree lists were each placed in social security number sequence from lowest number to highest. Every fifth name from each list was then selected until the desired sample size was reached.

Address labels for the sample were produced and placed
on envelopes, which contained the commander's letter
and the questionnaire. The envelopes were specifically
addressed to the military sponsor, who is the active
duty service member or the retiree. The questionnaires
were delivered to the U.S. Post Office on December 6,
1991.

Data Collection

January 31, 1992 was established as the cut off
date for receipt of the completed questionnaires. Five
hundred forty-five questionnaires were received by this
date. Nineteen questionnaires were not usable. The
total return rate was 38%. The return rate for the
active duty population was 43% (188) (see Appendix E).
The return rate for the retiree population was 32%
(315) (see Appendix F). Thirty-three questionnaires
were returned by survivors (see Appendix G). None of
the questionnaires were mailed directly to survivors
since a survivor listing was not available. Survivors,
however, do exist in the population, and there was a
chance that they would receive a questionnaire.

The data from the received questionnaires were
entered in the statistical software package APL (STSC,
1990). Before the data was entered, it was coded into

binary data. A value of one indicated the presence of a property. A value of zero indicated the absence of a property. For example, if a respondent placed a check next to any of the health care services listed in question five of the questionnaire, indicating that the respondent will need that particular health care service in the next two years, the check was coded into a one. Conversely any health care services left blank were coded zero. The questions concerning zip codes and number of family members were not coded into binary data. The responses to those two questions were entered into the statistical package the same way they appeared on the questionnaire.

Question 6a of the questionnaire asked the respondents to name the MMTF used, if they visited a MMTF in the last year. Question 6b asked the respondents to name the civilian health care facility used, if they visited a civilian provider in the last year. Over 80% of the respondents did not answer these questions. A possible reason for the poor response to questions 6a and 6b could be faulty design of those questions. Perhaps the respondents did not understand the questions or were not motivated to answer the questions. Since the response rate for those questions

were so low, it was not practical to perform statistics on these questions.

The intent of question 6a was to determine if the beneficiaries were receiving care from other DOD facilities. If a significant portion of the beneficiaries were using another DOD facility, KACH would have investigated the reasons why these other facilities were being used. Perhaps an intraservice or interservice agreement would have been indicated.

The intent of question 6b was to determine if a significant portion of the beneficiaries were using a specific civilian provider. If a significant amount of beneficiaries were using certain civilian providers, KACH would have considered establishing a preferred provider agreement with these providers, in order that lower rates for care could be obtained. The questionnaires can still provide valuable data to help determine if a preferred provider network should be established. If a significant number of respondents from the same communities are using civilian providers, then the establishment of preferred provider networks in these areas might be indicated.

Statistical Analysis

Descriptive statistics were performed on the returned questionnaires. The primary item of interest was the mean for each variable. The mean allows the researcher to discuss the results in terms of averages or percentages, which are easily understood by most people.

Results

Active Duty Households

Eighty-eight percent of the active duty households are located on West Point or Stewart Army Subpost. Several households are in towns that are located very close to West Point. For example, 126 households are located in the nearby communities of New Windsor, Cornwall, and Highland Falls.

Grouping the active duty households into three digit zip code regions provides a clearer view of the distribution of this population. I grouped the listing into the appropriate regions (see Appendix H). I obtained the three digit zip code maps from the National Five Digit Zip Code & Post Office Directory (National Information Data Center, 1991).

Ninety-nine percent of the active duty households are located in the three-digit zip code areas 109 and

125. Zip code areas 109 and 125 include cities located within 20 miles of West Point. In distant cities of the KACH catchment area, such as Fairfield and the boroughs of New York City, there are usually only one or two households.

The means for the active duty households were then computed (see Appendix I). There are 3.6 family members per household. All respondents are employed. I expected all respondents to be employed since they are active duty service members. The types of outpatient health care services that most households perceive they would most likely need in the next two years included skin (49%), eye (73%), foot (25%), allergy(26%), bones/joints (34%), gynecological (83%), physical therapy (23%), ears, nose, and throat (53%), adolescent (25%), and pediatric care (57%).

Eighty-five percent of the respondents used a MMTF for their outpatient health care needs in the last year. Nearly 40% of the households, however, used a civilian provider. Approximately 77% of those people using civilian providers used CHAMPUS to help finance the care. Eighteen percent of the respondents used other health insurance to finance the care. Forty-eight percent of the respondents used personal finances

to finance the health care received. The total of all means or percentages for the method of financing civilian outpatient care will be greater than 1 because beneficiaries can use more than one method to finance the care.

The means for the zip code areas 109 and 125, which accounted for 97% of the returned questionnaires, were also computed (see Appendixes J and K). The results for zip code areas 109 and 125 were very similar to each other as well as the results listed in Appendix I.

<u>Retiree Households</u>

According to the retiree listing, there are several distant cities in which large numbers of retirees live. For the purpose of this paper, a distant city is more than 30 miles from West Point. Approximately 330 households are located in three boroughs of New York City, which are Yonkers, the Bronx, and Manhattan. Theses boroughs are 40 miles from West Point. Over 100 retiree households are located in Mount Vernon, which is 34 miles from West Point. White Plains, which is almost 30 miles from West Point, possesses approximately 114 retiree households. Nearly 100 retiree households are located

in New Rochelle, which is also 34 miles from West Point.

In February, another retiree listing was identified. The Defense Medical Data Center (DMDC) located in Monterey, CA possessed a listing of approximately 7864 retiree households located in West Point's catchment area (personal communication, M. Halvorson, February 18, 1992). A copy of this listing was obtained in March (see Appendix L). This number is much closer to the 8173 reported by DMIS, but much larger than the RSO number of 4933. These discrepancies are further discussed in the discussion section of this paper.

The distribution of the retiree households on the DMDC listing is similar to the distribution on the RSO listing. The DMDC listing showed high concentrations of retiree households in distant cities, such as Manhattan, Bronx, Mount Vernon, White Plains, Yonkers, and New Rochelle. The DMDC listing also showed high concentrations of retiree households in Fairfield, CT, Danbury, CT, Norwalk, CT, Stamford, CT, Paterson, NJ, and Hackensack, NJ, which are all more than 30 miles from West Point.

Grouping the retiree households into three digit zip code regions provides a clearer view of the distribution of this large and diffuse population. I grouped the RSO listings and the DMDC listing into the appropriate regions. Table 2 lists these groupings.

Table 2

Retiree Household Distribution by Three Digit Zip Code

State	Three Digit Zip Code	RSO Listing	DMDC Listing
CT	064	19	218
CT	065	3	0
CT	066	5	14
CT	067	16	104
CT	068	31	710
CT	069	4	154
NJ	070	12	160
NJ	074	45	665
NJ	075	0	140
NJ	076	57	663
NJ	078	4	0
NJ	079	2	0
NJ	085	4	0
NY	100	137	329
NY	104	10	863
NY	105	946	905
NY	106	119	101
NY	107	359	301
NY	108	119	124
NY	109	934	923
NY	110	112	0
NY	112	2	0
NY	113	14	0
NY	115	37	37
NY	117	23	10
NY	118	4	0
NY	119	5	0
NY	120	87	0
NY	121	63	0
NY	122	6	0
NY	123	1	0

NY	124	308	166
NY	125	1060	1004
NY	126	149	168
NY	127	174	105
NY	128	7	0
NY	134	3	0
NY	137	5	0
PA	183	0	4

Note. RSO = Retirement Services Officer
DMDC = Defense Medical Data Center

The locations of the three digit zip code areas
are illustrated on the Three Digit Zip Code Maps of CT,
NJ, NY, and PA (see Appendix H). Using these maps
allows KACH to see what regions of the catchment area
have high concentrations of retiree households.
According to the RSO listing, there are approximately:
1. 1863 retiree households in the regions north,
northeast, and northwest of West Point (Zip Codes 120-
128), 2. 1143 retiree households in the regions east
of West Point (Zip Codes 105, 106, 064-069), 3. 822
retiree households south and southeast of West Point
(Zip Codes 100-104, 107-128), and 4. 124 retiree
households southwest of West Point (Zip Codes 070, 074-
076, 078, 079, 085). Approximately 934 retiree
households are located in West Point's Zip Code area
(109). The numbers listed above do not add up to 4933,
which is the number of retiree households on the
retiree database. The 47 zip codes omitted were those

located in areas far outside West Point's catchment area, such as Florida and North Carolina. Only one or two households were located in each of these zip codes.

According to the DMDC listing there are approximately: 1. 1443 retiree households north, northwest, and northeast of West Point (Zip Codes 120-128), 2. 2206 retiree households east of West Point (Zip Codes 105, 106, 064-069), 3. 1664 retiree households south and southeast of West Point (Zip Codes 100-104, 107-128), and 4. 1628 retiree households southwest of West Point (Zip Codes 070, 074-076, 078). Approximately 923 retiree households are located in West Point's Zip Code area (109). Only four retiree households are located in Pennsylvania (PA).

The majority of the retiree households appear to be located on the eastern portion of West Point's catchment area. There are not many retiree households located on the western and northwestern sections of West Point's catchment area. Therefore, KACH probably will not need to direct its Gateway to Care efforts towards these areas.

The means for the retiree households have been computed (see Appendix M). Twenty-eight percent of the retiree respondents are employed. The average retiree

household is comprised of 2 people. The types of outpatient health care services they perceive they will most likely need in the next two years include skin (36%), eye (65%), foot (29%), heart (48%), blood (31%), bones/joints (36%), gynecological 29%), ears, nose, and throat (39%), gastrointestinal (24%), and urinary tract (35%) care.

Approximately half of the retiree respondents used a military medical treatment facility for their health care needs in the last year. Several retiree respondents (72%) visited a civilian provider for their health care needs in the last year. It appears that the most frequent method of financing the civilian health care was with other health insurance (73%). A significant portion of the retiree respondents also used MEDICARE/MEDICAID (60%) and personal finances (61%). Only 17% of the retiree respondents used CHAMPUS to help finance the care.

I also computed means on six of the three digit zip codes (see Appendixes N-T). There were only a few completed questionnaires received from some of the other three digit zip code areas, so I did not compute means on them (see Appendix F). The means on the three digit zip code area were very similar to each other,

and very similar to the means computed in Appendix M. Therefore, there is no need to discuss each three digit zip code individually. Interestingly, however, zip code areas 109 and 125 had the highest CHAMPUS usage (28% and 25% respectively). These areas are also the closest to West Point.

Survivor Households

The means for the survivors were also computed (see Appendix T). The survivors' statistics were very similar to the retirees' statistics. Twenty-seven percent of the respondents are employed. There is approximately one person per survivor household. The types of health care services they believe they will most likely need in the next two years include skin (24%), eye (58%), foot (24%), heart (30%), allergy 21%), bones/joints (24%), gynecological (33%), ears, nose, and throat (36%), and gastrointestinal care (27%).

Almost half of the respondents used a military medical treatment facility in the last year. A significant portion of the respondents (61%) used a civilian provider in the last year. Only 5% used CHAMPUS to finance the civilian care. Health insurance was the most common means for paying for the civilian

health care (70%). Approximately 70% of the survivors, however, did use MEDICARE/MEDICAID. Fifty percent of the respondents used personal finances.

Discussion

The stated purpose of this project is to discover who the beneficiaries are, where they live, what their health needs are, where they receive their outpatient health care, and how they finance their civilian outpatient health care.

The majority of all active duty households (99%) are located near West Point or Stewart Army Subpost. The types of health care services these households perceive they need have been identified (see Appendix I). Given its current mission template and available resources, KACH can certainly meet the perceived health needs of this population. There is a high tendency for active duty households to use military medical treatment facilities for their health care (85%). Those who did use civilian providers (40%) used primarily CHAMPUS and personal finances to pay for the care. The percentage of active duty households using CHAMPUS (77%) is very high. KACH should be able to reduce the number of active duty households using civilian providers, and hence CHAMPUS, through Gateway

to Care. Hopefully KACH will be able to enroll 90-100%
of the active duty households. If high enrollment of
active duty households occurs, then fewer households
should be using civilian providers for their outpatient
care. Therefore, the percentage of active duty
households using CHAMPUS for outpatient care should
decrease.

The retiree households, however, are more diffuse.
There are many retiree households located in areas that
are a significant distance from West Point (1417 per
RSO listing/4601 per DMDC listing). These households
are located in cities such as Manhattan, Bronx,
Yonkers, New Rochelle, Long Island, and the areas in
western Connecticut and northeastern New Jersey. KACH
probably cannot efficiently and effectively provide
direct outpatient care to the retiree households in
these areas because of the their distance from West
Point.

Over 70% of the retiree respondents used a
civilian provider in the last year. Only 12%, however,
used CHAMPUS as a financing mechanism for this care. A
significant portion of the retiree respondents using
civilian providers financed the care through either

MEDICARE/MEDICAID (60%), other health insurance (73%),
and personal finances (61%).

The retirees and the U.S. Government would
probably benefit if these retirees received their care
at KACH, or through a preferred provider network,
established by KACH. Although CHAMPUS was not
frequently used to finance the civilian care,
MEDICARE/MEDICAID, which is financed by the government,
was often used. If KACH coordinates the retiree
households' health care, then the costs associated with
this health care should decrease for the retiree
households and the U.S. Government.

A significant amount of the retirees are also
using their personal resources to finance this care.
Perhaps the high use of MEDICARE/MEDICAID and personal
finances, combined with the low employment rate is
indicative of the age of the retirees. Retirees become
eligible for MEDICARE and ineligible for CHAMPUS at the
age of 65. Therefore, the majority of the retirees in
West Point's catchment are probably aged 65 years old
or older.

The KACH leadership expected the highly populated,
outlying areas to have high CHAMPUS usage for
outpatient care. According to the results, however,

the retiree households in the immediate vicinity of West Point are some of the most routine users of CHAMPUS (see Appendixes N through S). Perhaps KACH should take a closer look at the CHAMPUS utilization patterns of the retiree households located in zip code areas 109 and 125. Their CHAMPUS usage rates were 28% and 25% respectively. KACH will probably want to immediately enroll these CHAMPUS users in Gateway to Care when phase II begins. Retirees living in zip code areas 109 and 125 should receive the majority of their health care at KACH, since the retirees are so close to KACH, and since KACH has the necessary resources and mission template to meet the retirees' health needs.

A new medical information system, the CHAMPUS Utilization Management System (CHUMS), could assist in identifying routine users of CHAMPUS. CHUMS possesses information on CHAMPUS users. This information includes name, address, social security number, and name of civilian providers used. KACH received CHUMS in April, 1992.

Although there did not appear to be many CHAMPUS users in the distant cities, KACH should further study the necessity and feasibility of establishing various preferred provider networks in distant areas. CHUMS

can be used for this purpose. If many CHAMPUS users
exist in distant locations, KACH will want to enroll
them in Gateway to Care. Even if significant numbers
of CHAMPUS users are not identified, KACH may still be
directed by higher authority to enroll these
beneficiaries into Gateway to Care. Dr. Mendez
(1992a), however, has directed that beneficiary travel
time to routine primary (outpatient) care services, for
Gateway to Care enrollees, should not exceed 30
minutes. It certainly takes more than 30 minutes to
drive from any of the cities that are more than 30
miles from West Point, such as the cities in NJ and CT.
It also takes longer than 30 minutes to drive to West
Point from the zip code areas 100-104, 107, 108, 110-
119, and parts of zip code areas 124, and 126. As
mentioned previously, it may be necessary to
established preferred providers for retiree households
in these distant cities.

If preferred provider networks are necessary, then
the possibility exists for other governmental
facilities and civilian provider networks to manage the
outpatient care for the retirees who live more than 30
minutes traveling time from West Point. Facilities
that might be able to manage these retirees' outpatient

health care include Veterans' Administration (VA)
Hospitals and United States Treatment Facilities
(USTF). VA Hospitals are located in the Bronx,
Manhattan, and Brooklyn. A USTF is located on Staten
Island, NY. VA-DOD Sharing Agreements could be
established with the VA Hospitals for outpatient care.
KACH would reimburse participating VA facilities for
care provided to these groups of retiree households.
The USTF, Bayley-Seton Hospital, provides care for DOD
beneficiaries. KACH could arrange for certain retiree
households to receive their outpatient health care from
Bayley-Seton. KACH would reimburse the USTF for
providing care to these retiree households.

Assuming KACH enrolls the retiree households in
these distant locations, a possible strategy would
consist of the following arrangements. The retiree
households located in NJ (124 households per RSO
listing/1628 households per DMDC listing) will be
advised to have their outpatient health care managed by
any of the three VA Hospitals located in NY City. The
travel time to the VA Hospitals from these NJ locations
is less than thirty minutes. The travel time to West
Point from these NJ locations, however, is over 30
minutes. It might also be practical for some of these

households to use PACH, Fort Monmouth for their outpatient care. Some of the retiree households in the southern portion of West Point's catchment area might be within a 30 minute drive to PACH. The number of retiree households in this catchment area overlap is 16 according to the RSO listing, and 412 according to the DMDC listing.

The retiree households located in Yonkers, south of Yonkers, and on Long Island could be advised to have their outpatient health care managed by any of the three VA Hospitals or Bayley-Seton. This area includes zip code areas 100-104, 107-108, and 110-119. According to the RSO listing 822 households are in these areas. The DMDC listing lists 3281 households in the same areas.

There are no VA Hospitals, MMTFs, or USTFs located within a 30 minute travel to the cities in CT. The KACH leadership will need to negotiate with some of the civilian provider networks in CT. KACH would want these networks to provide outpatient care for the beneficiaries in CT. According to the RSO listing, there are 78 retiree households in CT. The DMDC lists 1200 retiree households in CT.

The retiree households located in zip code areas 124-126 are north of West Point. The retiree households in these areas number 1863 according to the RSO, and 1443 according to DMDC. Traveling from many of these cities to West Point takes longer than 30 minutes. These retiree households, however, could have their primary health care managed by the Stewart Armed Forces Health Clinic (SAFHC). The SAFHC is located on STAS, which is 17 miles north of West Point. Traveling to SAFHC from these communities would take 30 minutes or less. The SAFHC could effectively and efficiently manage the primary health care of this population, given its current mission template and resources available.

Retiree households will only use these external providers for outpatient care. KACH will continue to provide inpatient care, since it has inpatient capabilities. KACH would primarily be interested in having the routine CHAMPUS users use the external providers.

The perceived health needs of the retiree households has also been identified (see Appendix M). KACH can meet these health care needs.

Since the survivors' results for their health
needs, location of outpatient health care received, and
methods of financing civilian health care mirrored the
retiree results, the same comments would be applicable.
Once again KACH should be able to meet the survivors'
health needs. The survivors would also benefit from
enrolling in Gateway to Care. Enrollment of survivors,
however, is not yet scheduled.

As mentioned previously, differences in the
retiree listings exist. The number of retirees listed
by the RSO is significantly lower than the number
listed by the DMDC. The RSO listing is based on W-2
form addresses of retirees. The W-2 form address is
not always the same as the actual residence address of
the retirees. The DMDC listing, like DMIS, is based on
DEERS information. Retirees might not always update
their DEERS records when they move to a new location.
These discrepancies indicate that listings of DOD
beneficiaries are not completely accurate. Nine
million DOD beneficiaries, however, are not very easy
to track. I am sharing the DMDC information with West
Point's RSO. Hopefully the RSO will be able to sort
out the discrepancies and eventually produce a more
accurate listing of the retirees.

Conclusion and Recommendations

Conclusion

Keller Army Community Hospital's active duty and retiree households have been identified. Databases have been created on these households. The database for active duty households is being used for the enrollment of active duty families.

The locations of these populations have been successfully determined (see Table 2, and Appendixes B, C, H, and L). Nearly all of the active duty households (99%) are located in the immediate vicinity of West Point or STAS. The retiree households are more diffuse. According to the RSO listing, 3516 households are located close to West Point. According to the DMDC listing, 3267 retiree households are located close to West Point. Many retiree households, however, are not located close to West Point. According to the RSO listing 1417 households are more than 30 miles from West Point. According to the DMDC listing, 4601 retiree households are more than 30 miles from West Point.

The perceived health care needs of the population have also been identified (see Appendixes I-K and M-S).

The perceived health needs of the active duty and retiree households can be met by KACH.

This paper also indicates where the beneficiaries receive their outpatient health care, and for care received from civilian providers, how they financed the health care (see Appendixes I-K and M-S). The active duty households primarily used a MMTF for their outpatient health care needs (86%). A fairly high percentage of the active duty households (40%) did receive care from civilian providers and consequently finance that care through CHAMPUS. A significant amount of retirees (72%) used civilian providers for their health care needs. Only a small fraction of the retiree households (17%), however, used CHAMPUS as the financing mechanism. This was probably due to age. The retiree households, who use CHAMPUS more routinely, live very close to West Point.

Recommendations

Keller Army Community Hospital should constantly ensure that its services are commensurate with the health care needs of the beneficiary population (see Appendixes I-K and M-S). This can done through periodic health needs assessments.

KACH should also continue to aggressively enroll the entire active duty household population in Gateway to Care. KACH is capable of providing comprehensive health care to the entire active duty population. KACH will be able to more effectively contain CHAMPUS costs as more active duty households enroll in Gateway to Care.

The leadership of KACH should enter into negotiations with the VA Hospitals in the Bronx, Yonkers, and Manhattan, Bayley-Seton Hospital, and civilian provider networks in CT in the near future. The purpose of the negotiations is to have these facilities provide outpatient care to the certain retiree households located in the NJ, CT, and zip code areas 100-104, 107, 108, 110-119 in the methods prescribed in the discussion section of this paper. After the arrangements with the provider networks, VA Hospitals, and USTF have been completed, KACH should first attempt to enroll into Gateway to Care, that segment of the retiree population that uses CHAMPUS on a regular basis. The KACH leadership can use CHUMS to identify these CHAMPUS users.

Additional research should be performed on the distant cities and towns which have high concentrations

of retiree households. This would help determine if the need exists for enrolling more of these beneficiaries in Gateway to Care and for establishing more provider networks in these areas.

The leadership at KACH should also perform more research on the retirees residing in zip code areas 109 and 125 in an effort to immediately enroll the frequent CHAMPUS users into Gateway to Care. Very few beneficiaries, who live in zip code areas 109 and 125, should be using CHAMPUS, since they are so close to KACH. CHUMS can, once again, help identify the CHAMPUS users. KACH certainly has the capability to manage the health care needs of those retirees who use CHAMPUS.

Finally, the KACH leadership will want to investigate the possibility of deleting some cities from its catchment area. The cities on Long Island are extremely far from West Point, in terms of travel time. The travel time from these locations on Long Island to West Point is approximately two hours.

The beneficiary analysis of the active duty and retiree households has been accomplished. Armed with this information, the KACH leadership can better focus its Gateway to Care strategy. Since this paper indicates that the more frequent users of CHAMPUS are

located in zip code area 109 and 125, KACH should
direct its initial Gateway to Care efforts to these
areas. The leadership, however, should also be
prepared to manage the health care needs of the
beneficiaries living in distant cities.

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Appendix A

West Point and Fort Monmouth Catchment Areas
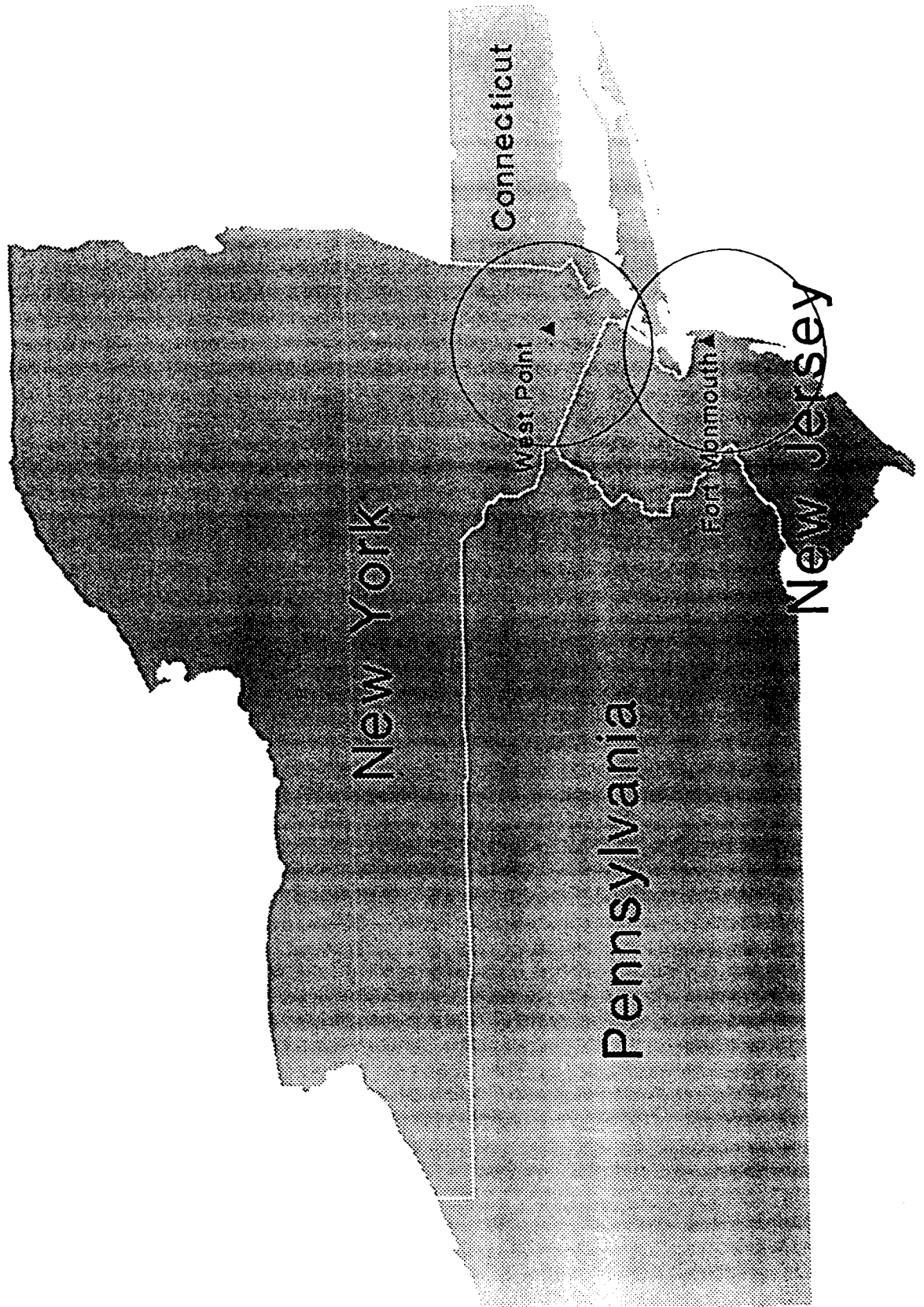
Appendix B

Distribution of Active Duty Households

ZIP CODE	Number of Households	CITY
06430	1	Fairfield
06482	1	Sandy Hook
06488	1	Southbury
07011	1	Clifton
07026	1	Garfield
07430	1	Mahwah
07435	1	Newfoundland
07465	1	Wanaqua
07675	1	Old Tappan
10032	1	New York
10466	1	Bronx
10509	1	Brewster
10512	1	Carmel
10524	1	Garrison
10541	1	Mahopac
10566	1	Peekskill
10588	1	Shrub Oak
10591	1	Tarrytown
10901	1	Suffern
10915	2	Bullville
10918	1	Chester
10919	1	Circleville
10920	1	Congers
10922	2	Ft. Montgomery
10923	1	Garneville
10924	2	Goshen
10926	2	Harriman
10928	30	Highland Falls
10930	1	Highland Mills
10940	4	Middletown
10950	4	Monroe
10953	3	Mountain Vill
10958	2	New Hampton
10965	1	Pearl River
10970	1	Pomona
10977	2	Spring Valley
10990	1	Warwick
10992	5	Washingtonville
10993	2	W. Haverstraw
10994	1	W. Nyack
10996	992	West Point
12401	5	Kingston
12428	3	Ellenville

12446	1	Kerhonkson
12466	1	Port Ervan
12508	5	Beacon
12512	1	Chelsea
12515	1	Clintondale
12518	15	Cornwall
12520	10	Cornwall on Hdsn
12524	2	Fishkill
12525	1	Gardiner
12527	1	Glenham
12533	1	Hopewell
12538	1	Hyde Park
12540	1	Lagranville
12542	1	Marlboro
12543	3	Maybrook
12548	1	Modena
12549	8	Montgomery
12550	55	New Windsor
12551	1	Newburgh
12553	923	Newburgh
12561	4	New Paltz
12564	1	Pawling
12566	3	Pine Bush
12568	3	Plattekill
12569	1	Pleasantville
12577	3	Salisbury Mills
12581	1	Standfordville
12584	2	Vailsgate
12586	8	Walden
12589	4	Wallkill
12590	7	Wappinger Fls
12594	1	Wingdale
12601	7	Poughkeepsee
12603	4	Arlington
12721	4	Bloomingburg
12771	1	Port Jervis
12790	1	Wurtsboro

Total: 2176

Appendix C

Distribution of Retiree Households

ZIP CODE		Number of Households	CITY
01027	*	1	Easthampton
01244	*	1	Mill River
01876	*	1	Tewksbury
01930	*	1	Gloucester
02632	*	1	Anterville
02917	*	1	Esmond
03755	*	1	Hanover
03772	*	1	Mount Sunapee
03833	*	1	Exeter
03854	*	1	New Castle
05062	*	1	Reading
05257	*	1	North Bennington
05733	*	1	Brandon
06001	*	1	Avon
06018	*	1	Candan
06058	*	1	Norfolk
06111	*	1	Newington
06378	*	1	Sonington
06401	*	2	Pleasantville
06410	*	1	Cheshire
06460	*	2	Milford
06470	*	3	Newton
06473	*	1	North Haven
06483	*	1	Seymour
06488	*	7	Southbury
06497	*	2	Stratford
06514	*	1	Hamdon
06516	*	1	West Haven
06517	*	1	Hamden
06601	*	1	Bridgeport
06604	*	1	Bridgeport
06605	*	1	Bridgeport
06606	*	1	Bridgeport
06611	*	1	Trumbull
06702	*	1	Waterbury
06704	*	1	Waterbury
06708	*	1	Waterbury
06716	*	1	Wolcott
06757		1	Kent
06776		7	New Milford
06777		1	New Prstn
06784		1	Sherman

06787	*	1	Thomaston
06795	*	1	Watertown
06801		1	Bethel
06804		1	Brookfield
06810		4	New Fairfield
06811		2	Danbury
06820		2	Darien
06830		4	Greenwich
06850		1	Norwalk
06853		1	Norwalk
06954		1	Norwalk
06870		2	Old Greenwich
06877		8	Ridgefield
06880		2	West Port
06883		1	Weston
06896		1	West Redding
06897		2	Wilton
06902		2	Stamford
06903		1	Stamford
06905		1	Stamford
07005	*	1	Boonton
07006	*	2	Caldwell
07012		2	Clifton
07024		2	Fort Lee
07047		1	North Bergen
07072		2	Caulstadt
07090	*	1	Westfield
07093	*	1	West New York
07306	*	2	Jersey City
07407		3	Elmwood Park
07410		3	Fair Lawn
07421		1	Hewitt
07422		2	Highland Lakes
07430		2	Mahwah
07432		2	Midland Park
07436		1	Oakland
07442		1	Popton Lakes
07446		2	Ramsey
07450		4	Ridgewood
07452		9	Glen Rock
07456		1	Ringwood
07458		2	Saddle River
07462		2	Vernon
07463		2	Waldwick
07470		3	Wayne
07481		3	Wyckoff
07506		1	Hawthorne
07603		1	Bogota

07607	1	Maywood
07621	1	Bergenfield
07624	2	Closter
07626	2	Cresskill
07627	1	Demarest
07628	5	Dumont
07630	7	Emerson
07631	1	Englewood
07632	1	Englewood Cliffs
07641	1	Hawthorne
07642	2	Hillsdale
07644	2	Lodi
07646	1	New Milford
07649	3	Oradell
07652	5	Palamos
07661	2	River Edge
07662	1	Saddle Brook
07666	4	Teaneck
07670	2	Tenefly
07675	12	Old Tappan
07828	1	Montague
07869	1	Dover
07871	2	Sparta
07901	1	Summit
07960	1	*Momstown*
08088	1	Vincentown
08505	1	Bordeotown
08772	1	Beachwood
08773	1	Lakehurst
10019-10024	137	New York
10458-10471	10	Bronx
10501	1	Amawalk
10502	10	Ardsley
10504	9	Armonk
10506	6	Bedford
10507	5	Bedford Hills
10509	29	Brewster
10510	19	Briarcliff Mnr
10511	3	Buchannan
10512	29	Carmel
10514	13	Chappaqua
10516	5	Cold Spring
10518	2	Cross River
10519	3	Croton Falls
10520	20	Croton Hdsn
10522	20	Dobbs Ferry
10523	8	Elmsford
10524	11	Garrison

10526	2	Goldens Brg
10527	1	Granite Spgs
10528	13	Harrison
10530	28	Hartsdale
10532	6	Hawthorne
10533	12	Irvington
10535	2	Jefferson Vly
10536	20	Katonah
10537	1	Lake Peekskill
10538	31	Larchmont
10540	3	Lincolndale
10541	33	Mahopac
10542	1	Mahopac Falls
10543	27	Mamaroneck
10546	1	Millwood
10547	7	Mohegan Lake
10548	12	Montrose
10549	23	Mount Kisco
10550	49	Mount Vernon
10551	7	Mount Vernon
10552	26	Mount Vernon
10553	17	Mount Vernon
10560	2	North Salem
10562	45	Ossining
10566	72	Peekskill
10570	8	Pleasantville
10573	43	Port Chester
10576	6	Pound Ridge
10578	5	Purdys
10579	10	Putnum Vly
10580	31	Rye
10583	80	Scarsdale
10587	2	Shenorock
10588	8	Shurboak
10589	21	Somers
10590	5	South Salem
10591	42	North Tarrytown
10594	7	Thornwood
10595	11	Valhalla
10596	3	Venplanck
10597	1	Wacabuc
10598	28	Yorktown Hts
10601	14	White Plains
10603	26	N. White Plains
10604	12	White Plains
10605	36	White Plains
10606	15	White Plains
10607	15	White Plains

10650	1	White Plains
10701	65	Yonkers
10702	2	Yonkers
10703	18	Yonkers
10704	47	Yonkers
10705	56	Yonkers
10706	25	Hastings Hdsn
10707	26	Tuckahoe
10708	60	Bronxville
10709	21	Eastchester
10710	39	Yonkers
10801	45	New Rochelle
10802	2	New Rochelle
10803	22	Pelham
10804	28	New Rochelle
10805	22	New Rochelle
10901	32	Suffern
10912	1	Belwale
10913	15	Blauvelt
10914	1	Bloomingrove
10916	3	Campbell Hall
10917	4	Central Uly
10918	8	Chester
10919	1	Circleville
10920	10	Congers
10921	5	Florida
10922	24	Ft. Montgomery
10923	8	Garnerville
10924	27	Goshen
10925	15	Greenwood Lk
10926	4	Harriman
10927	3	Haverstraw
10928	215	Highland Falls
10930	13	Highland Mills
10931	4	Hillburn
10932	1	Howells
10933	1	Johnson
10940	93	Middletown
10950	28	Monroe
10952	16	Monsey
10953	1	Mountainville
10954	25	Bardonia
10956	41	New City
10958	4	New Hampton
10959	1	New Milford
10960	28	Nyack
10962	9	Orangeburg
10963	9	Otisvilie

10964		2	Palisades
10965		40	Pearl River
10968		3	Piermont
10969		4	Pine Island
10970		6	Pomona
10973		7	State Hill
10974		3	Sloatsburg
10976		1	Sparkill
10977		40	Spring Uly
10980		23	Stony Point
10981		1	Sugar Loaf
10982		1	Tallman
10983		12	Tappan
10984		2	Thiehills
10985		2	Thompson Rdg
10986		2	Tompkins Cove
10987		5	Tuxedo Park
10988		3	Unionville
10989		21	Vly Cottage
10990		24	Warwick
10992		23	Washingtonville
10993		1	W. Haverstraw
10994		13	W. Nyack
10996		44	West Point
10998		1	Westown
11001	*	4	Floral Park
11004	*	14	Floral Park
11010	*	22	Franklin Square
11020	*	9	Great Neck
11022	*	1	Great Neck
11030	*	1	Manhassett
11040	*	60	New Hyde Park
11050	*	1	Port Washington
11201	*	1	Brooklyn
11209	*	2	Brooklyn
11214	*	1	Brooklyn
11230	*	1	Brooklyn
11354-11385	*	14	Flushing
11425-11426	*	2	Jamaica
11530	*	4	Garden City
11552-11554	*	4	Hempstead
11558	*	2	Island Park
11576	*	2	Roslyn
11577	*	1	Roslyn Heights
11580	*	1	Valley Stream
11590	*	2	Westbury
11710	*	1	Bellmore
11719	*	1	Brookhaven

11720	*	1	Centerreach
11727	*	1	Coram
11732	*	1	East Norwich
11735	*	2	Farmingdale
11743	*	2	Huntington
11746	*	1	Huntington Stat
11753	*	1	Jericho
11757	*	1	Lindenhurst
11758	*	4	Massapaqua
11763	*	1	Medford
11780	*	1	Saint James
11783	*	1	Seaford
11787	*	1	Smithtown
11793	*	3	Wantagh
11801	*	3	Hicksville
11803	*	1	Hicksville
11901	*	1	Riverhead
11937	*	1	East Hampton
11947	*	1	Jamesport
11967	*	1	Shirley
11968	*	1	South Hampton
12037	*	8	Chatham
12054	*	1	Delmar
12058	*	2	Earlton
12061	*	19	East Greenbush
12075	*	14	Ghent
12078	*	34	Gloversville
12083	*	7	Greenville
12084	*	1	Guilderland
12087	*	1	Hannacroix
12106	*	10	Kinderhook
12110	*	36	Latham
12125	*	3	New Lebanon
12130	*	2	Niverville
12136	*	2	Old Chatham
12138	*	1	Petersburg
12140	*	6	Yoestenkill
12158	*	1	Selkirk
12165	*	1	Spencertown
12184	*	1	Valatie
12203	*	3	Albany
12204	*	2	Albany
12208	*	1	Albany
12304	*	1	Schenectady
12401		95	Kingston
12404		10	Accord
12409	*	4	Bearsville
12411		1	Bloomington

12412		1	Boiceville
12413		10	Cairo
12414		42	Catskill
12416		3	Chichester
12417		1	Connelly
12418		3	Cornwallville
12422		1	Durham
12426		1	Kingston
12428		10	Elenville
12431	*	4	Freehold
12432		2	Glasco
12440		2	High Falls
12441	*	1	Highmount
12446		8	Kerhonskson
12449		7	Lake Katrive
12456	*	1	Mount Marion
12458		3	Napanoch
12460	*	1	Oakhill
12461		1	Oliverbridge
12464	*	2	Phoenicia
12465	*	2	Pinehill
12466	*	10	Portewen
12471		2	Rifton
12472		4	Rosendale
12474	*	8	Roxbury
12477	*	24	Saugerties
12480	*	2	Shandaken
12481	*	2	Shoken
12483		2	Spring Glen
12484		8	Stone Ridge
12486		7	Tillson
12487		3	Ulster Park
12489		1	Wawaising
12491	*	3	West Hurley
12496	*	6	Windham
12498		8	Woodstock
12501		4	Amenia
12502	*	3	Ancram
12507		1	Barrytown
12508		32	Beacon
12511		2	Castle Point
12512.		1	Chelsea
12514		2	Clinton Cors
12515		2	Clintondale
12516		4	Copake
12518		73	Cornwall
12520		79	Cornwall on Hdsn
12522		8	Dover Plains

12524		29	Fishkill
12525		8	Gardiner
12526	*	9	Germantown
12527		2	Glinham
12528		14	Highland
12529	*	4	Hillsdale
12531		1	Holmes
12533		22	Hopewell Jct
12534	*	45	Hudson
12538		28	Hyde Park
12540		5	Lagrangeville
12542		9	Marlboro
12543		8	Maybrook
12545		20	Millbrook
12546		7	Millerton
12547		6	Milton
12548		1	Modena
12549		22	Montgomery
12550		326	New Windsor
12561		37	New Paltz
12563		9	Patterson
12564		13	Pawling
12566		14	Pine Bush
12567	*	6	Pine Plains
12568		3	Plattekill
12569		14	Pleasant Vly
12570		2	Poughquag
12571	*	11	Red Hook
12572		17	Rhinebeck
12575		10	Rock Tavern
12577		5	Salisbury MLS
12578		1	Salt Point
12580		8	Statsburg
12581		5	Stanfordville
12582		4	Stormville
12583		4	Tivoli
12584		7	Vails Gate
12586		30	Waldem
12588		1	Walker Valley
12589		29	Wallkill
12590		48	Wappinger Fls
12592		1	Wassaic
12594		2	Wingdale
12599-12600		2	Poughkeepsie
12601		67	Poughkeepsie
12602		4	Poughkeepsie
12603		78	Arlington
12701	*	16	Monticello

12719	*	2	Barryville
12720	*	1	Bethel
12721		9	Bloomingburg
12723	*	4	Callicoon
12725	*	1	Claivill
12726	*	1	Cochecton
12732	*	1	Elared
12733		1	Fallsburg
12734	*	1	Ferndale
12736	*	1	Fremont Center
12737	*	2	Glen Spey
12738		2	Glen Wild
12739		3	Godeffroy
12740	*	6	Grahamsville
12741	*	3	Hankins
12743	*	1	Highland Lake
12745	*	1	Hortonville
12746		8	Huguenot
12747	*	5	Hurleyville
12748	*	2	Jeffersonville
12750	*	2	Kenoza Lake
12751		2	Kiamesha Lake
12754	*	12	Liberty
12758	*	4	Livingston Manor
12760	*	2	Long Eddy
12762	*	1	Mongaup Vly
12764	*	5	Narrowsburg
12765	*	1	Neversink
12766	*	1	North Branch
12767	*	2	Obernburg
12768	*	3	Parksville
12769		1	Phillipsport
12771		27	Port Jervis
12775		2	Rockhill
12776	*	1	Roscoe
12778	*	1	Smallwood
12780		9	Sparrow Bush
12781		4	Summitville
12783	*	3	Swan Lake
12788		3	Woodburne
12789		2	Woodridge
12790		11	Wurtsboro
12791	*	3	Younsville
12792	*	1	Yolan
12815	*	2	Brant Lake
12850	*	3	Middle Grove
12866	*	2	Saratoga Springs
13440	*	1	Rorne

13478	*	1	Verona
13501	*	1	Utica
13756	*	1	Easter Br
13775	*	1	Franklin
13783	*	3	Hancock
13825	*	1	Otega
14110	*	1	North Boston
14221	*	1	Buffalo
14226	*	1	Buffalo
14467	*	1	Henrietta
14580	*	1	Webster
14609	*	1	Rochester
15003	*	1	Ambridge
16506	*	1	Erie
16514	*	1	Erie
17020	*	1	Duncannon
17404	*	1	York
18052	*	1	Whitehall
18235	*	1	Lexington
18337	*	2	Milford
18405	*	1	Beach Lake
18465	*	1	Thompson
18840	*	1	Sajre
18996	*	1	South Hampton
19545	*	1	New Berlinville
20007	*	1	Washington
21701	*	1	Frederick
22032	*	1	Fairfax
22401	*	1	Fredericksburg
28302	*	1	Fayettville
28374	*	1	Pinehurst
28387	*	1	Southern Pines
28453	*	1	Magnolio
29356	*	1	Landlum
29801	*	1	Aiken
30458	*	2	Statesboro
31411	*	1	Savannah
32086	*	1	Saint Augustin
32514	*	1	Pensacola
32646	*	1	Homassosa
32789	*	1	Winter Park

Total: 4933

Note. * = Not listed in DMIS Catchment Area

Appendix D

<u>KELLER ARMY COMMUNITY HOSPITAL QUESTIONNAIRE</u>

DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY
WEST POINT. NEW YORK 10996

October 30, 1991

REPLY TO
ATTENTION OF

Dear Military Beneficiary:

Keller Army Community Hospital (KACH) is
continually striving to improve the healthcare services
delivered to you, our customer. KACH wants to improve
your healthcare services by:

- Improving access to care
- Maintaining/Improving the high quality of
care, and
- Containing the skyrocketing costs of
healthcare.

The first step towards improving your healthcare
services is to learn about you. Essentially, we want
to know what your health needs are, so that we can meet
these needs.

The enclosed questionnaire is being used to gather
this information. Please take the time to fill it out
and mail it back. The questionnaire contains
instructions for both filling out the form and mailing
it back to KACH.

This questionnaire has been mailed to a random
sample of our beneficiairy population. The random
sample comprises approximately five percent of the
beneficiary population. Therefore, the success of this
survey depends on a high return rate of this
questionnaire.

Thank you for your assistance in improving your
healthcare.

Sincerely,

Livio F. Pardi
Colonel, U.S. Army
Commanding

KELLER ARMY COMMUNITY HOSPITAL

To improve the quality of your healthcare services at Keller Army Community Hospital, information is being gathered about the health needs of the beneficiaries that live within the West Point area. This information will allow us to improve your healthcare services. This questionnaire is voluntary and all information will be kept confidential.

INSTRUCTIONS: Please fill in the blank or place a check for each response as indicated.

1. Your Zip Code:_____.
2. Are you employed? Yes___ No___.
3. Status: Active Duty____ Retired____ Survivor____ Other_____.
4. Family Members: Total Number_____ (Including yourself)

5. Please place a check next to those health care services that you think your family will need in the next two years.

Skin___	Bones/Joints___	Muscles___.
Eyes___	Gynecological___	Hormonal___.
Foot___	Physical Therapy___	New Born___.
Lung___	Nuclear Medicine___	Pediatric___.
Liver___	Ears, Nose, Throat___	Social Work___.
Heart___	Reproductive System___	Psychiatric___.
Blood___	Adolescent Medicine___	Radiological___.
Kidney___	Brain/Nervous System___	Urinary Tract___.
Cancer___	Stomach/Digestive Tract___	General Surgery ___.
Allergy___	Obstetrical (Childbirth)___	Other_____.

6. If you or anyone in your family have received *OUTPATIENT* care services in the last year, please indicate where you received these services:

    a. Military Healthcare Facility   Yes___ No___.
       If "yes" is checked, please indicate where: _____.
                                      _____.
                                        _____.

    b. Civilian Provider   Yes___ No___.
       If "yes" is checked, please indicate where: _____.
                                        _____.
                                        _____.

        If a civilian provider was used, how did you pay for the services received? (Place a check next to all that apply)

                                    CHAMPUS____.
                                      MEDICARE/MEDICAID___.
                                      Other Health Insurance____.
                                      Personal Finances____.

Please return this form to Keller Army Community Hospital by folding on the lines indicated, taping closed, and dropping it in the nearest mailbox. If you have any questions about this questionnaire, please call Captain Randy Howard at 914-938-4300/4832. He'll be happy to assist you.

DEPARTMENT OF THE ARMY
KELLER ARMY COMMUNITY HOSPITAL
ATTN: HSUD
WEST POINT, NY 10996-1197

82

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 51 WEST POINT POINT, N.Y.

POSTAGE WILL BE PAID BY ADDRESSEE

ATTN: HSUD
DEPARTMENT OF THE ARMY
KELLER ARMY COMMUNITY HOSPITAL
WEST POINT, NY 10996-9901

REFOLD ON RULES AND TAPE EDGE CLOSED

Appendix E

Distribution of Active Duty Respondents

Zip Code	Number of Respondents
10928	2
10940	2
10996	107
11022	1
11364	1
12458	1
12520	1
12548	1
12550	8
12552	1
12553	53
12564	1
12566	2
12586	2
12589	1
12594	1
12603	1
13454	1
17026	1
Total:	188

Appendix F

Distribution of Retiree Respondents

Zip Code	Number of Respondents
10019	1
10023	3
10024	2
10301	1
10424	1
10471	1
10504	1
10506	1
10509	2
10512	3
10514	1
10522	1
10524	1
10527	1
10530	2
10532	1
10536	1
10541	2
10543	3
10548	1
10549	2
10550	1
10552	1
10553	1
10560	1
10562	3
10566	6
10570	1
10573	1
10579	1
10580	2
10583	4
10588	1
10589	1
10591	3
10598	1
10603	1
10604	1
10606	2
10701	4
10703	1

10704	2
10705	1
10707	1
10708	5
10709	1
10710	2
10801	2
10803	2
10804	4
10901	5
10913	1
10914	1
10918	1
10922	2
10923	2
10925	1
10926	2
10928	15
10930	1
10931	1
10932	1
10940	10
10950	5
10952	1
10954	2
10956	5
10960	3
10964	1
10965	2
10968	1
10977	3
10980	2
10983	1
10989	2
10992	2
10994	1
10996	4
11004	2
11010	3
11021	1
11022	1
11040	1
11426	1
11435	1
11530	1
11710	1
11735	1
11801	1

11937	1
12037	2
12075	1
12087	1
12106	1
12110	1
12401	2
12412	1
12414	3
12428	1
12431	1
12443	1
12466	1
12474	1
12477	3
12486	1
12500	1
12501	1
12508	3
12515	1
12516	2
12518	6
12520	6
12522	1
12524	1
12525	1
12528	3
12533	1
12534	3
12538	2
12542	2
12545	1
12547	1
12549	1
12550	8
12552	1
12553	4
12556	1
12575	1
12580	2
12581	1
12582	1
12586	1
12589	4
12590	1
12601	3
12603	6
12701	1

12721	1
12738	1
12746	1
12748	1
12771	2
12775	1
12780	4
12783	1
12790	1
12940	1
13775	1
16470	1
16776	1
16777	1
16780	1
16850	1
16854	1
16880	1
16902	1
17012	1
17047	1
17422	1
17436	1
17506	1
17603	1
17632	1
17642	1
17675	3
22047	1
32976	1
34230	1
36792	1
76180	1
Total:	315

Appendix G

Distribution of Survivor Respondents

Zip Code	Number of Respondents
10510	1
10512	1
10535	1
10538	2
10553	1
10562	1
10583	2
10701	2
10705	1
10709	1
10928	8
10977	1
12106	1
12125	1
12508	1
12522	1
12526	1
12550	2
12553	1
12572	1
12603	1
18733	1
Total:	33

Appendix H

THREE DIGIT ZIP CODE MAPS

THREE-DIGIT ZIP CODE MAP

CONNECTICUT

Area within circle represents catchment area.

Three-Digit Zip Code	Number of Active Duty Households
064	3

THREE-DIGIT ZIP CODE MAP
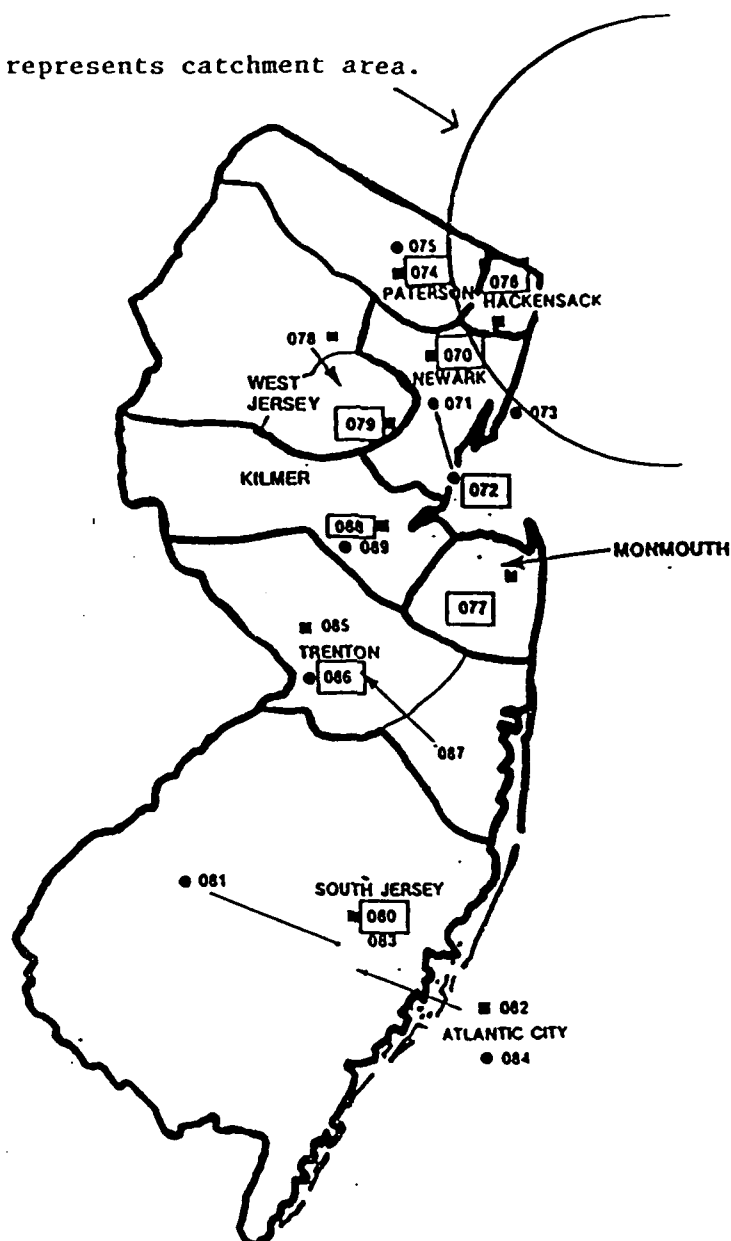
NEW JERSEY

Area within circle represents catchment area.

Three-Digit Zip Code	Number of Active Duty Households
070	2
074	3
076	1

THREE-DIGIT ZIP CODE MAP

NEW YORK

Area within circle represents catchment area. ⟶
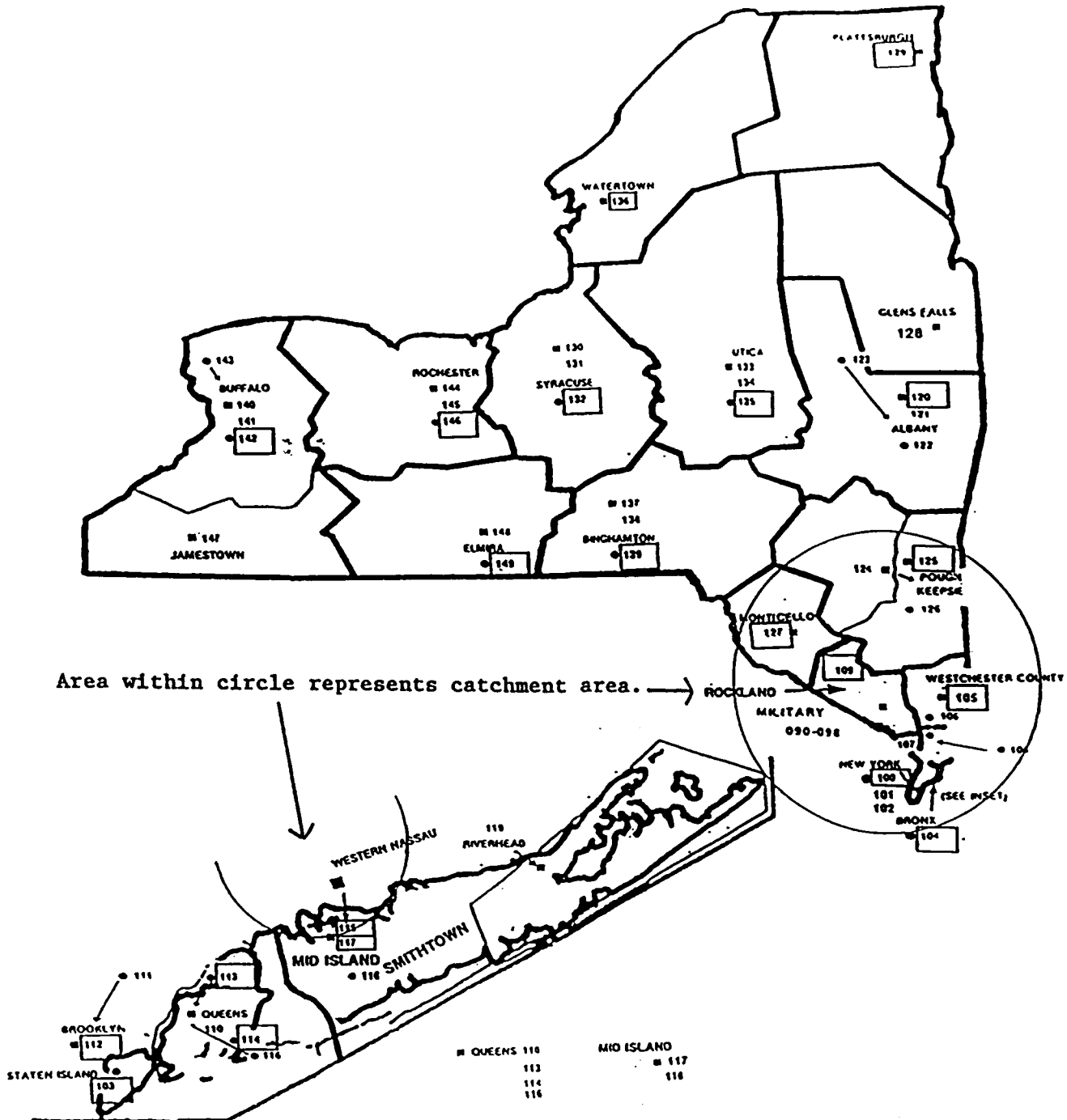
Three-Digit Zip Code	Number of Active Duty Households
100	1
104	1
105	7
109	1062
124	10
125	1069
126	12
127	6
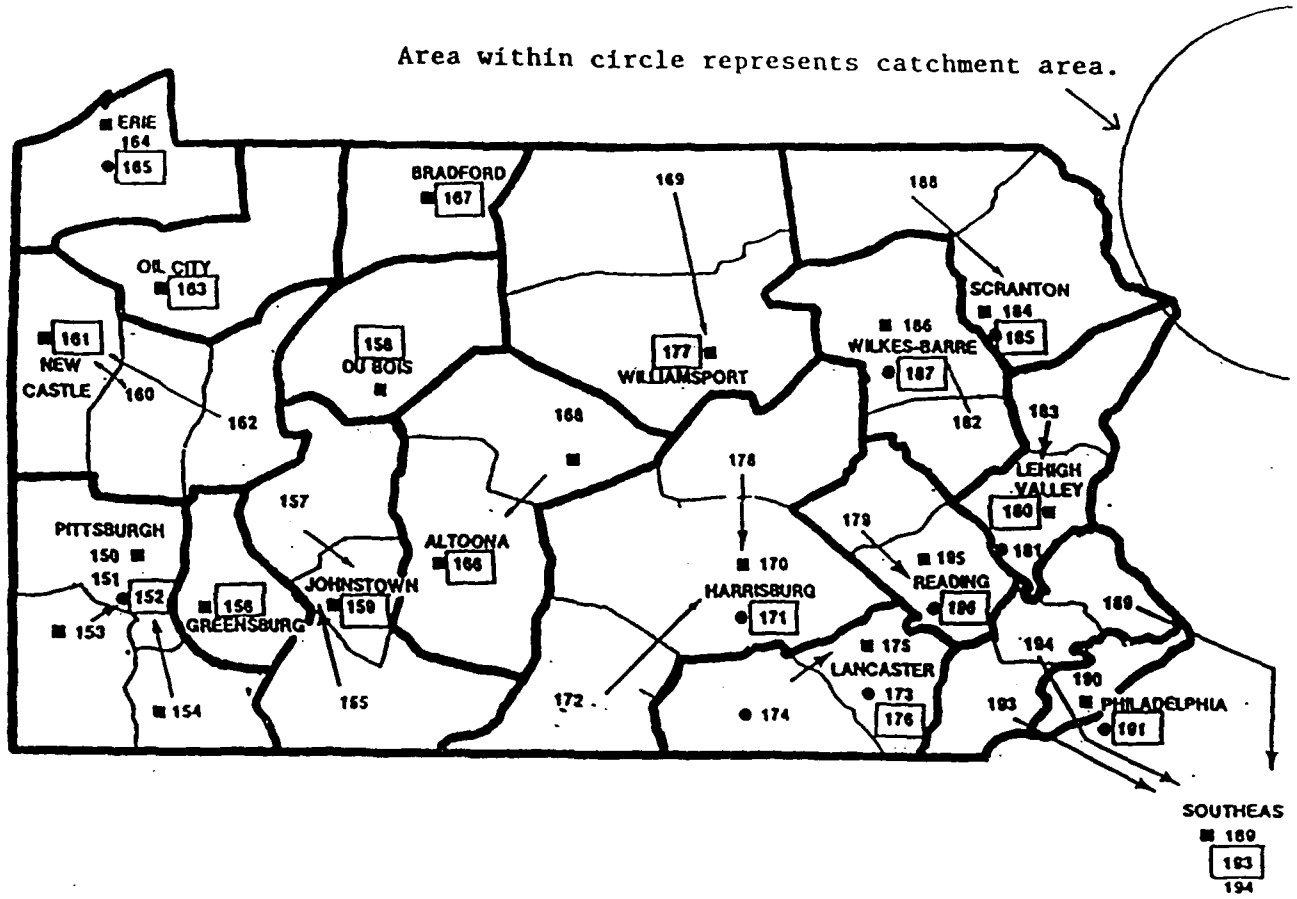
PENNSYLVANIA

Area within circle represents catchment area.

ERIE
164
● 165

BRADFORD
167

169

188

OIL CITY
163

SCRANTON
184

161
NEW
CASTLE   160

158
DU BOIS

177
WILLIAMSPORT

■ 186
WILKES-BARRE
● 187

185

162

168

182

183

157

178

LEHIGH
VALLEY
180

PITTSBURGH
150 ■
151
152

156
GREENSBURG

ALTOONA
166

179

■ 170

185
READING
186

181

153

JOHNSTOWN
159

HARRISBURG
● 171

■ 175
LANCASTER
● 173
176

194

189

190
PHILADELPHIA
● 191

■ 154

155

172

● 174

193

SOUTHEAS
■ 189
193
194

Three-Digit Zip Code

Number of Active Duty Households
0

CONNECTICUT

Area within circle represents catchment area.

Three-Digit Zip Code	Number of Retiree Households	
	RSO	DMDC
064	19	218
065	3	0
066	5	14
067	16	104
068	31	710
069	4	154
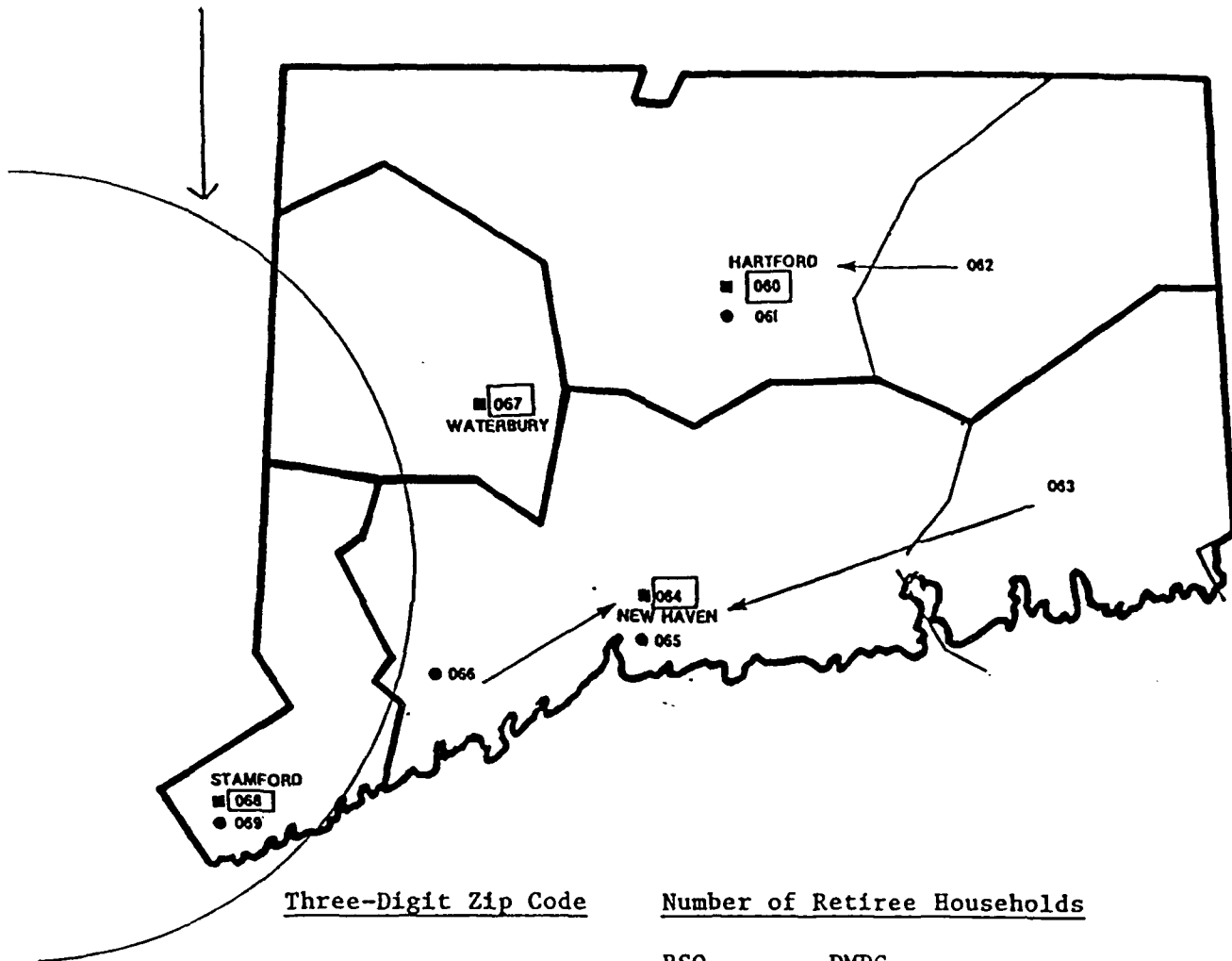
THREE-DIGIT ZIP CODE MAP

NEW JERSEY

Area within circle represents catchment area.
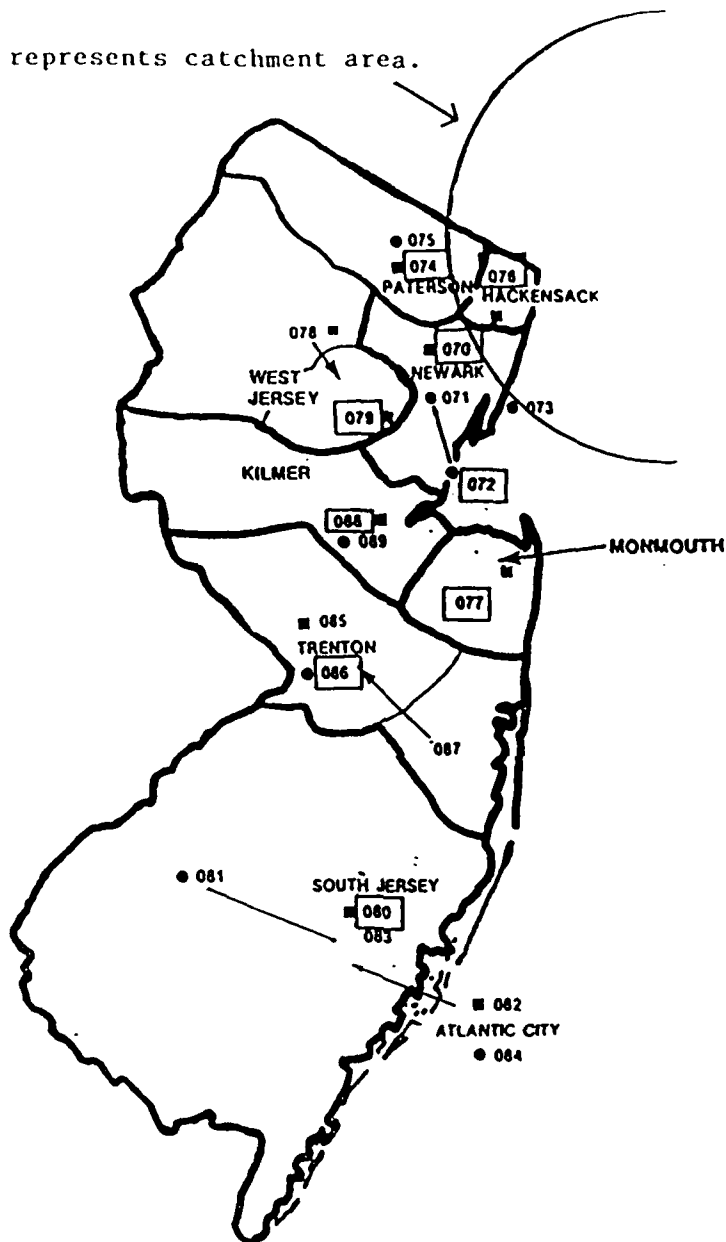
Three-Digit Zip Code	Number of Retiree Households	
	RSO	DMDC
070	12	160
074	45	665
075	0	140
076	57	663
078	4	0
079	2	0
085	4	0

THREE-DIGIT ZIP CODE MAP

NEW YORK

Area within circle represents catchment area. ⟶
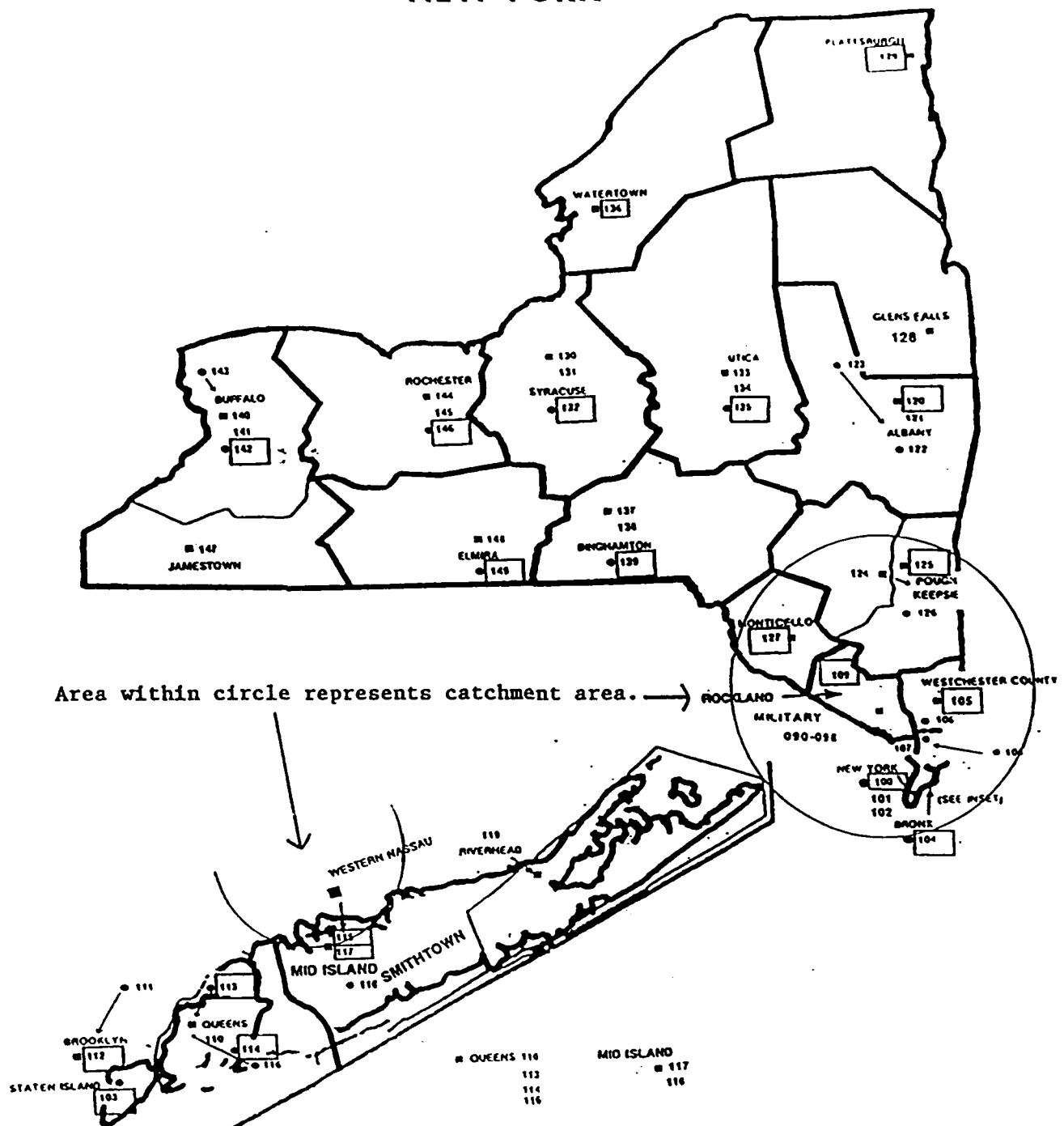
Three-Digit Zip	No. of Retiree Households		Three-Digit Zip	No. of Retiree Househo:	
	RSO	DMDC		RSO	DMDC
100-104	147	1192	123	1	0
105-106	1065	1006	124-127	1691	1443
107-108	478	425	128	7	0
109	934	923	134	5	0
110-119	197	47	137	5	0
120-122	210	0			

THREE-DIGIT ZIP CODE MAP

PENNSYLVANIA

Area within circle represents catchment area.
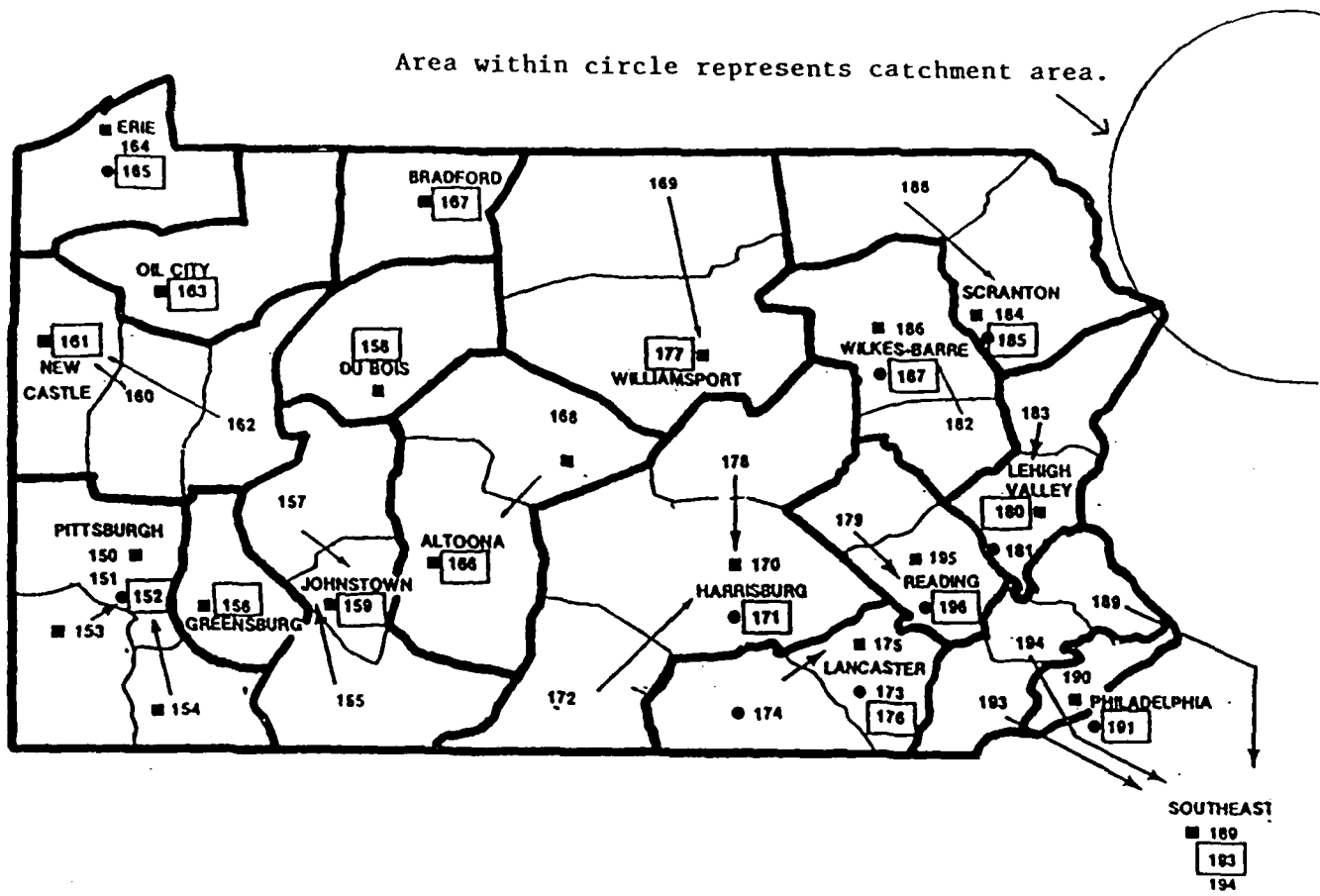
Three-Digit Zip Code	Number of Retiree Households	
	RSO	DMDC
183	0	4

Appendix I

Means for Active Duty Households

Number of Cases: 188

Variable	Mean
1. Employed	1.0000
2. Number of Family Members	3.6489
3. Health care Services Needed:	
a. Skin	.4894
b. Eyes	.7340
c. Foot	.2500
d. Lung	.0319
e. Liver	.0160
f. Heart	.0745
g. Blood	.1489
h. Kidney	.0160
i. Cancer	.0266
j. Allergy	.2606
k. Bones/Joints	.3404
l. Gynecological	.8298
m. Physical Therapy	.2340
n. Nuclear Medicine	.0213
o. Ears, Nose, Throat	.5266
p. Reproductive System	.1170
q. Adolescent	.2500
r. Central Nervous System	.0319
s. Gastrointestinal	.1277
t. Obstetrical	.1596
u. Muscles	.0851
v. Hormonal	.0957
w. Newborn	.1543
x. Pediatric	.5798
y. Social Work	.0213
z. Psychological/Psychiatric	.0426
aa. Radiological	.1702
bb. Urinary Tract	.0745
cc. General Surgery	.0585
4. Used a MMTF	.8564
5. Used a Civilian Provider	.3989
Method of Financing Civilian Health care	
a. CHAMPUS	.7733
b. Used MEDICARE/MEDICAID	0
c. Other Health Insurance	.1867
d. Personal Finances	.4800

Appendix J

Means for Zip Code Area 109

Number of Cases: 111

Variable	Mean
1. Employed	1.0000
2. Number of Family Members	3.7477
3. Health care Services Needed:	
a. Skin	.5586
b. Eyes	.7928
c. Foot	.2342
d. Lung	.0272
e. Liver	.0090
f. Heart	.0811
g. Blood	.1622
h. Kidney	.0090
i. Cancer	.0090
j. Allergy	.2613
k. Bones/Joints	.3423
l. Gynecological	.8378
m. Physical Therapy	.2072
n. Nuclear Medicine	.0090
o. Ears, Nose, Throat	.5586
p. Reproductive System	.1351
q. Adolescent	.2703
r. Central Nervous System	.0270
s. Gastrointestinal	.1351
t. Obstetrical	.1261
u. Muscles	.0811
v. Hormonal	.1171
w. Newborn	.1081
x. Pediatric	.5676
y. Social Work	.0090
z. Psychological/Psychiatric	.0541
aa. Radiological	.1532
bb. Urinary Tract	.0721
cc. General Surgery	.0360
4. Used a MMTF	.8829
5. Used a Civilian Provider	.3694
Method of Financing Civilian Health care	
a. CHAMPUS	.8049
b. Used MEDICARE/MEDICAID	0
c. Other Health Insurance	.2195
d. Personal Finances	.4146

Appendix K

Means for Zip Code Area 125

Number of Cases: 71

Variable	Mean
1. Employed	1.0000
2. Number of Family Members	3.4930
3. Health care Services Needed:	
a. Skin	.3944
b. Eyes	.6338
c. Foot	.2535
d. Lung	.0423
e. Liver	.0282
f. Heart	.0704
g. Blood	.1268
h. Kidney	.0282
i. Cancer	.0563
j. Allergy	.2394
k. Bones/Joints	.3380
l. Gynecological	.8451
m. Physical Therapy	.2676
n. Nuclear Medicine	.0423
o. Ears, Nose, Throat	.4648
p. Reproductive System	.0986
q. Adolescent	.1972
r. Central Nervous System	.0423
s. Gastrointestinal	.1127
t. Obstetrical	.2254
u. Muscles	.0986
v. Hormonal	.0704
w. Newborn	.2394
x. Pediatric	.6056
y. Social Work	.0282
z. Psychological/Psychiatric	.0000
aa. Radiological	.1972
bb. Urinary Tract	.0845
cc. General Surgery	.0845
4. Used a MMTF	.8310
5. Used a Civilian Provider	.4225
Method of Financing Civilian Health care	
a. CHAMPUS	.7660
b. Used MEDICARE/MEDICAID	0
c. Other Health Insurance	.1666
d. Personal Finances	.5333

Appendix L

Distribution of Retiree Households as Listed by the Defense Medical Data Center

Zip Code	Number of Households	City
06430	95	Fairfield
06468	23	Monroe
06470	3	Newtown
06471	17	Newtown
06482	11	Sandy Hook
06488	69	Southbury
06612	14	Easton
06752	5	Bridgewater
06755	2	Gaylordsville
06757	5	Kent
06776	42	New Milford
06777	4	Washington DT
06783	10	Roxbury
06784	8	Sherman
06785	2	South Kent
06792	1	Washington DT
06794	7	Washington DT
06798	18	Woodbury
06801	35	Bethel
06804	24	Brookfield
06805	4	Brookfield
06807	15	COS COB
06810	47	Danbury
06811	43	Danbury
06812	27	Fairfield
06813	2	Danbury
06820	51	Darien
06830	74	Greenwich
06840	43	New Canaan
06850	31	Norwalk
06851	60	Norwalk
06854	19	Norwalk
06855	13	Norwalk
06870	18	Old Greenwich
06877	67	Ridgefield
06878	13	Riverside
06880	61	Westport
06883	20	Weston
06896	6	West Redding
06897	37	Wilton

06901	5	Stamford
06902	71	Stamford
06903	32	Stamford
06905	26	Stamford
06906	9	Stamford
06907	11	Stamford
07011	41	Clifton
07013	59	Clifton
07026	27	Garfield
07035	17	Lincoln Park
07045	8	Montville
07082	8	Towaco
07401	10	Allendale
07403	11	Bloomingdale
07405	22	Butler
07407	21	Elmwood Park
07410	58	Fair Lawn
07416	12	Franklin
07417	17	Franklin
07418	9	Glenwood
07419	8	Hamburg
07420	4	Haskell
07421	4	Hewitt
07422	11	Highland LKS
07423	10	*HO HO KUS*
07424	22	Little Falls
07428	3	McAffee
07430	17	Mahwah
07432	10	Midland Park
07432	5	Newfoundland
07436	34	Oakland
07438	12	Oak Ridge
07439	2	Ogdensburg
07442	20	Pompton Lakes
07444	12	Pompton Plains
07446	24	Ramse
07450	64	Ridgewood
07452	35	Glen Rock
07456	12	Ringwood
07457	3	Riverdale
07458	25	Saddle River
07460	4	Stockholm
07461	30	Sussex
07462	4	Vernon
07463	12	Waldwick
07465	1	Wanaque
07470	71	Wayne
07480	16	W. Milford

07481	30	Wyckoff
07501	15	Paterson
07502	11	Paterson
07503	10	Paterson
07504	10	Paterson
07505	5	Paterson
07506	17	Hawthorne
07508	20	Haledon
07509	4	Paterson
07512	10	Totowa
07514	14	Paterson
07522	18	Paterson
07524	6	Paterson
07601	50	Hackensack
07602	2	Hackensack
07603	7	Bogota
07605	14	Leonia
07606	1	Hackensack
07607	11	Maywood
07620	43	Bergenfield
07624	10	Closter
07626	17	Creskill
07627	7	Demarest
07628	32	Dumont
07630	15	Emerson
07631	41	Englewood
07632	11	Englewood Cliffs
07640	8	Harrington park
07641	13	Haworth
07642	24	Hillsdale
07644	24	Lodi
07645	9	Montvale
07646	23	New Milford
07647	7	Northvale
07648	5	Norwood
07649	23	Oradell
07652	43	Paramis
07656	12	Park Ridge
07661	26	River Edge
07662	24	Rochelle Park
07666	69	Teaneck
07670	25	Tenafly
07675	67	Westwood
10027	55	New York
10029	52	New York
10030	15	New York
10031	31	New York
10032	29	New York

10033	20	New York
10034	13	New York
10035	15	New York
10037	40	New York
10039	33	New York
10040	26	New York
10451	34	Bronx
10452	21	Bronx
10453	27	Bronx
10454	11	Bronx
10456	33	Bronx
10457	32	Bronx
10458	39	Bronx
10459	18	Bronx
10460	23	Bronx
10461	38	Bronx
10462	60	Bronx
10463	61	Bronx
10464	12	Bronx
10465	48	Bronx
10466	53	Bronx
10467	60	Bronx
10468	35	Bronx
10469	69	Bronx
10470	14	Bronx
10471	33	Bronx
10472	44	Bronx
10473	52	Bronx
10474	3	Bronx
10475	43	Bronx
10502	5	Ardsley
10504	15	Armonk
10506	8	Bedford
10507	4	Bedford Hills
10509	28	Brewster
10510	20	Briarcliff
10511	7	Buchanan
10512	27	Carmel
10514	17	Chappaqua
10516	4	Cold Spring
10517	2	Crompond
10519	4	Croton Falls
10520	16	Croton on Hudson
10522	22	Dobbs Ferry
10523	9	Elmsford
10524	9	Garrison
10527	2	Granite
10528	11	Harrison

10530	16	Hartsdale
10532	6	Hawthorne
10533	16	Irvington
10536	17	Katonah
10538	33	Larchmont
10541	36	Mahopac
10543	26	Mamaroneck
10547	9	Mohegan Lake
10548	19	Montrose
10549	26	Mount Kisco
10550	44	Mount Vernon
10552	51	Mount Vernon
10560	4	North Salem
10562	30	Ossining
10566	68	Peekskill
10570	17	Pleasantville
10573	39	Port Chester
10576	7	Pound Ridge
10577	2	Purchase
10578	6	Purdys
10579	11	Putnam Valley
10580	31	Rye
10583	63	Scarsdale
10587	4	Shenrock
10588	10	Shrub Oak
10589	18	Somers
10590	7	S. Salem
10592	23	Tarrytown
10594	11	Thornwood
10595	9	Valhalla
10596	3	Verplanck
10598	33	Yorktown Heights
10601	15	White Plains
10603	22	White Plains
10604	13	White Plains
10605	26	White Plains
10606	14	White Plains
10607	11	White Plains
10701	52	Yonkers
10702	2	Yonkers
10703	20	Yonkers
10704	50	Yonkers
10705	41	Yonkers
10706	21	Hastings
10707	22	Tuckahoe
10708	46	Bronxville
10709	8	Eastchester
10710	39	Yonkers

10801	52	New Rochelle
10802	2	New Rochelle
10803	19	Pelham
10804	51	New Rochelle
10901	41	Suffern
10912	2	Bellvale
10913	8	Blauvelt
10914	2	Blooming Grove
10915	2	Bullville
10916	6	Campbell Hall
10917	3	Central Valley
10918	19	Chester
10919	4	Circleville
10920	15	Congers
10921	6	Florida
10922	16	Ft. Montgomery
10923	16	Garnerville
10924	28	Goshen
10925	14	Greenwood Lake
10926	6	Harriman
10927	6	Haverstraw
10928	123	Highland Falls
10930	15	Highland Mills
10932	3	Howells
10933	1	Johnson
10940	107	Middletown
10950	42	Monroe
10952	19	Monsey
10953	2	Mountainville
10954	25	Nanuet
10956	46	New City
10958	9	New Hampton
10960	24	Nyack
10962	9	Orangeburg
10963	10	Otisville
10964	4	Palisades
10965	40	Pearl River
10968	3	Piermont
10969	4	Pine Island
10970	6	Pomona
10973	5	Slate Hill
10974	5	Sloatsburg
10976	4	Sparkill
10977	39	Spring Valley
10980	32	Stony Point
10983	17	Tappan
10984	2	Thiells
10987	8	Tuxedo Park

10988	4	Unionville
10989	11	Vly Cottage
10990	28	Warwick
10992	21	Washingtonville
10993	3	Havertraw
10994	17	West Nyack
10996	38	West Point
10998	3	Westown
11542	37	Glen Cove
11709	10	Bayville
12401	84	Kingston
12404	4	Accord
12411	2	Bloomington
12417	2	Connelly
12420	1	Cragsmoor
12428	6	Ellenville
12429	1	Esopus
12435	1	Greenfield Park
12440	5	High Falls
12443	5	Hurley
12446	8	Kerhonkson
12449	7	Lake Katrine
12458	3	Napanoch
12466	9	Port Ewen
12472	6	Rosendale
12476	1	Stone Valley
12484	8	Stone Ridge
12486	6	Tillson
12487	4	Ulster Park
12489	3	Wawarsing
12501	8	Amenia
12507	4	Barrytown
12508	43	Beacon
12512	2	Chelsea
12514	4	Clinton Corner
12515	2	Clintondale
12518	54	Cornwall
12520	55	Cornwall on Hudsn
12522	9	Dover Plains
12524	23	Fishkill
12525	11	Gardiner
12527	4	Glenham
12528	29	Highland
12531	4	Holmes
12533	32	Hopewell Jct
12538	28	Hyde Park
12540	4	Lagrangeville
12542	13	Marlboro

12543	7	Maybrook
12545	14	Millbrook
12547	5	Milton
12548	2	Modena
12549	25	Montgomery
12550	255	Newburgh
12551	5	Newburgh
12553	90	New Windsor
12561	37	New Paltz
12563	5	Patterson
12564	9	Pawling
12566	12	Pine Bush
12568	2	Plattekill
12569	7	Pleasant Valley
12570	8	Poughquag
12572	20	Rhunebeck
12575	8	Rock Tavern
12577	4	Salisbury
12578	1	Salt Point
12580	9	Staatsburg
12581	6	Stanfordville
12582	4	Stormville
12584	8	Vails Gate
12585	35	Walden
12588	2	Walker Valley
12589	33	Wallkill
12590	55	Wappingers Falls
12594	7	Wingdale
12601	75	Poughkeepsie
12602	3	Poughkeepsie
12603	90	Poughkeepsie
12721	18	Bloomingburg
12729	2	Cuddebackville
12738	8	Huguenot
12751	1	Kiamesha Lake
12769	1	Phillipsport
12771	39	Port Jervis
12775	3	Rock Hill
12779	1	S. Fallsburg
12780	10	Sparrow Bush
12785	4	Westbrookville
12788	7	Woodbourne
12790	11	Wurtsboro
18336	4	Matamoros
Total:	7864	

Appendix M

Means for Retiree Households

Number of Cases: 315

Variable	Mean
1. Employed	.2794
2. Number of Family Members	2.044
3. Health care Services Needed:	
a. Skin	.3566
b. Eyes	.6540
c. Foot	.2921
d. Lung	.1016
e. Liver	.0603
f. Heart	.4286
g. Blood	.3143
h. Kidney	.0857
i. Cancer	.1206
j. Allergy	.1587
k. Bones/Joints	.3683
l. Gynecological	.2889
m. Physical Therapy	.1492
n. Nuclear Medicine	.0413
o. Ears, Nose, Throat	.3937
p. Reproductive System	.0317
q. Adolescent	.0286
r. Central Nervous System	.0476
s. Gastrointestinal	.2444
t. Obstetrical	.0063
u. Muscles	.0984
v. Hormonal	.0444
w. Newborn	.0032
x. Pediatric	.0286
y. Social Work	.0063
z. Psychological/Psychiatric	.0190
aa. Radiological	.1365
bb. Urinary Tract	.3524
cc. General Surgery	.1365
4. Used a MMTF	.5175
5. Used a Civilian Provider	.7175
Method of Financing Civilian Health care	
a. CHAMPUS	.1726
b. Used MEDICARE/MEDICAID	.6018
c. Other Health Insurance	.7345
d. Personal Finances	.6106

Appendix N

Means for Zip Code Area 105

Number of Cases: 51

Variable	Mean
1. Employed	.2941
2. Number of Family Members	1.9804
3. Health care Services Needed:	
a. Skin	.3137
b. Eyes	.6275
c. Foot	.2745
d. Lung	.0784
e. Liver	.0000
f. Heart	.4314
g. Blood	.3137
h. Kidney	.0588
i. Cancer	.0196
j. Allergy	.1765
k. Bones/Joints	.3725
l. Gynecological	.2745
m. Physical Therapy	.1176
n. Nuclear Medicine	.0392
o. Ears, Nose, Throat	.3725
p. Reproductive System	.0196
q. Adolescent	.0000
r. Central Nervous System	.0392
s. Gastrointestinal	.3137
t. Obstetrical	.0000
u. Muscles	.0588
v. Hormonal	.0000
w. Newborn	.0000
x. Pediatric	.0196
y. Social Work	.0000
z. Psychological/Psychiatric	.0196
aa. Radiological	.1373
bb. Urinary Tract	.3922
cc. General Surgery	.1176
4. Used a MMTF	.4510
5. Used a Civilian Provider	.7647
Method of Financing Civilian Health care	
a. CHAMPUS	.1025
b. Used MEDICARE/MEDICAID	.6666
c. Other Health Insurance	.7692
d. Personal Finances	.5641

Appendix O

Means for Zip Code Area 107

Number of Cases: 17

Variable	Mean
1. Employed	.2942
2. Number of Family Members	2.0588
3. Health care Services Needed:	
a. Skin	.1765
b. Eyes	.6471
c. Foot	.2353
d. Lung	.0588
e. Liver	.0588
f. Heart	.4118
g. Blood	.1765
h. Kidney	.1176
i. Cancer	.0588
j. Allergy	.1765
k. Bones/Joints	.4118
l. Gynecological	.2353
m. Physical Therapy	.1176
n. Nuclear Medicine	.0000
o. Ears, Nose, Throat	.4118
p. Reproductive System	.0000
q. Adolescent	.0000
r. Central Nervous System	.0000
s. Gastrointestinal	.1765
t. Obstetrical	.0000
u. Muscles	.0588
v. Hormonal	.0000
w. Newborn	.0000
x. Pediatric	.0000
y. Social Work	.0000
z. Psychological/Psychiatric	.0000
aa. Radiological	.1765
bb. Urinary Tract	.1765
cc. General Surgery	.0588
4. Used a MMTF	.1765
5. Used a Civilian Provider	.8235
Method of Financing Civilian Health care	
a. CHAMPUS	.2142
b. Used MEDICARE/MEDICAID	.7142
c. Other Health Insurance	.8571
d. Personal Finances	.6428

Appendix P

Means for Zip Code Area 109

Number of Cases: 78

Variable		Mean
1.	Employed	.3846
2.	Number of Family Members	2.1282
3.	Health care Services Needed:	
a.	Skin	.3974
b.	Eyes	.6538
c.	Foot	.4359
d.	Lung	.1923
e.	Liver	.0897
f.	Heart	.4615
g.	Blood	.3718
h.	Kidney	.0641
i.	Cancer	.1538
j.	Allergy	.1667
k.	Bones/Joints	.4103
l.	Gynecological	.3205
m.	Physical Therapy	.1923
n.	Nuclear Medicine	.0513
o.	Ears, Nose, Throat	.4231
p.	Reproductive System	.0256
q.	Adolescent	.0641
r.	Central Nervous System	.0256
s.	Gastrointestinal	.2564
t.	Obstetrical	.0256
u.	Muscles	.1154
v.	Hormonal	.0769
w.	Newborn	.0128
x.	Pediatric	.0385
y.	Social Work	.0128
z.	Psychological/Psychiatric	.0256
aa.	Radiological	.1282
bb.	Urinary Tract	.4359
cc.	General Surgery	.2692
4.	Used a MMTF	.6795
5.	Used a Civilian Provider	.6410
	Method of Financing Civilian Health care	
a.	CHAMPUS	.2800
b.	Used MEDICARE/MEDICAID	.5200
c.	Other Health Insurance	.7400
d.	Personal Finances	.6600

Appendix Q

Means for Zip Code Area 124

Number of Cases: 14

Variable		Mean
1.	Employed	.2857
2.	Number of Family Members	1.8571
3.	Health care Services Needed:	
	a. Skin	.3571
	b. Eyes	.7143
	c. Foot	.1429
	d. Lung	.0714
	e. Liver	.0714
	f. Heart	.2857
	g. Blood	.3571
	h. Kidney	.1429
	i. Cancer	.1429
	j. Allergy	.0714
	k. Bones/Joints	.2857
	l. Gynecological	.2857
	m. Physical Therapy	.0000
	n. Nuclear Medicine	.0714
	o. Ears, Nose, Throat	.4286
	p. Reproductive System	.0000
	q. Adolescent	.0000
	r. Central Nervous System	.0000
	s. Gastrointestinal	.2143
	t. Obstetrical	.0000
	u. Muscles	.0714
	v. Hormonal	.0000
	w. Newborn	.0000
	x. Pediatric	.0000
	y. Social Work	.0000
	z. Psychological/Psychiatric	.0000
	aa. Radiological	.1429
	bb. Urinary Tract	.3571
	cc. General Surgery	.0714
4.	Used a MMTF	.1429
5.	Used a Civilian Provider	.6429
	Method of Financing Civilian Health care	
	a. CHAMPUS	.0000
	b. Used MEDICARE/MEDICAID	.4000
	c. Other Health Insurance	.8000
	d. Personal Finances	.4000

Appendix R

Means for Zip Code Area 125

Number of Cases: 63

Variable	Mean
1. Employed	..2857
2. Number of Family Members	2.1270
3. Health care Services Needed:	
a. Skin	.3651
b. Eyes	.5873
c. Foot	.2698
d. Lung	.0952
e. Liver	.1111
f. Heart	.4127
g. Blood	.3333
h. Kidney	.0952
i. Cancer	.1587
j. Allergy	.2222
k. Bones/Joints	.3492
l. Gynecological	.3651
m. Physical Therapy	.1270
n. Nuclear Medicine	.0159
o. Ears, Nose, Throat	.4127
p. Reproductive System	.0476
q. Adolescent	.0317
r. Central Nervous System	.0317
s. Gastrointestinal	.1905
t. Obstetrical	.0000
u. Muscles	.1429
v. Hormonal	.0476
w. Newborn	.0000
x. Pediatric	.0635
y. Social Work	.0000
z. Psychological/Psychiatric	.0000
aa. Radiological	.1270
bb. Urinary Tract	.2381
cc. General Surgery	.1270
4. Used a MMTF	.6190
5. Used a Civilian Provider	.6349
Method of Financing Civilian Health care	
a. CHAMPUS	.2500
b. Used MEDICARE/MEDICAID	.4500
c. Other Health Insurance	.5750
d. Personal Finances	.5250

Appendix S

Means for Zip Code Area 127

Number of Cases: 14

Variable	Mean
1. Employed	.1429
2. Number of Family Members	1.714
3. Health care Services Needed:	
a. Skin	.3571
b. Eyes	.7857
c. Foot	.0714
d. Lung	.0000
e. Liver	.0000
f. Heart	.7143
g. Blood	.6429
h. Kidney	.2143
i. Cancer	.0000
j. Allergy	.1429
k. Bones/Joints	.5714
l. Gynecological	.1429
m. Physical Therapy	.2857
n. Nuclear Medicine	.1429
o. Ears, Nose, Throat	.2857
p. Reproductive System	.1429
q. Adolescent	.0000
r. Central Nervous System	.1429
s. Gastrointestinal	.4286
t. Obstetrical	.0000
u. Muscles	.2857
v. Hormonal	.0000
w. Newborn	.0000
x. Pediatric	.0000
y. Social Work	.0000
z. Psychological/Psychiatric	.0714
aa. Radiological	.1429
bb. Urinary Tract	.2857
cc. General Surgery	.1429
4. Used a MMTF	.6429
5. Used a Civilian Provider	.7143
Method of Financing Civilian Health care	
a. CHAMPUS	.2000
b. Used MEDICARE/MEDICAID	.7000
c. Other Health Insurance	.8000
d. Personal Finances	.8000

Appendix T

Means for Survivor Households

Number of Cases: 33

Variable	Mean
1. Employed	.2727
2. Number of Family Members	1.27279
3. Health care Services Needed:	
a. Skin	.2424
b. Eyes	.5758
c. Foot	.2424
d. Lung	.0303
e. Liver	.0000
f. Heart	.3030
g. Blood	.1212
h. Kidney	.0303
i. Cancer	.0303
j. Allergy	.2121
k. Bones/Joints	.2424
l. Gynecological	.3333
m. Physical Therapy	.0909
n. Nuclear Medicine	.0000
o. Ears, Nose, Throat	.3636
p. Reproductive System	.0000
q. Adolescent	.0000
r. Central Nervous System	.0000
s. Gastrointestinal	.2727
t. Obstetrical	.0000
u. Muscles	.0303
v. Hormonal	.1515
w. Newborn	.0000
x. Pediatric	.0000
y. Social Work	.0000
z. Psychological/Psychiatric	.0000
aa. Radiological	.0909
bb. Urinary Tract	.0303
cc. General Surgery	.0303
4. Used a MMTF	.4545
5. Used a Civilian Provider	.6061
Method of Financing Civilian Health care	
a. CHAMPUS	.0500
b. Used MEDICARE/MEDICAID	.5500
c. Other Health Insurance	.7000
d. Personal Finances	.5000